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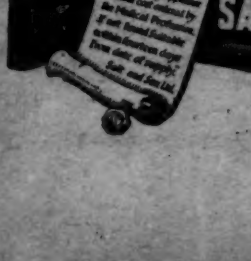

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY SEPTEMBER 15 1945

THIOURACIL IN THE TREATMENT OF THYROTOXICOSIS

BY

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AND

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From the great sequence of workers from Astwood in 1943 to Leys in 1945 there has come a practically unbroken chorus of praise for the good effects of thiourea, thiouracil, and methyl thiouracil in the treatment of thyrotoxicosis; there are, however, some few (Joll; Morley, 1944) who are not entirely of that mind. To this more critical view we ourselves would incline, while fully realizing the great value of thiouracil in the treatment of most cases of thyrotoxicosis. We therefore present a series of 29 cases observed and measured by us, mostly over a period of 16 to 21 months, whereas other workers (Nussey, 1944) include some much shorter observations. We believe that this longer period is of great importance, as in several cases we have seen initial improvement, comparable to that obtained with Lugol's iodine, followed by later relapse while still under treatment; and, in some instances, leading to thyroidectomy.

Our Series of Cases

In all, 29 cases are here studied—8 men and 21 women—the ages varying from 22 to 66 years. The evidence of thyrotoxicosis, suggested by the symptoms, has in each case been supported by a raised basal metabolic rate. The division into primary and secondary types has so much bearing on our main argument that some explanation is necessary: the former have developed their symptoms and signs either before the appearance of a goitre or *pari passu*; the latter are regarded as secondary to an established goitre, often of years' duration.

Thiouracil was used almost exclusively—first while the patient was in hospital, until the B.M.R. returned to normal, and then as an out-patient practice. Of the physico-chemical measurements made, initial and end readings alone are given; in all B.M.R. estimations the Benedict spirometer was used; blood sugar and cholesterol levels were determined weekly, but we cannot agree with Leys that they are anything like so useful as the B.M.R. as a guide to the degree of thyrotoxicosis. Our usual dosage of thiouracil has been 0.5 g. twice daily until the B.M.R. began to return to normal limits; then 0.2 g. daily or twice daily; and finally 0.05–0.19 g. as a maintenance dose. The figures given (see Table) of the time under treatment refer only to the actual days on which the patient took the drug and do not include periods of investigation or of rest (often lasting for weeks). From this table of results the following broad inferences have been drawn.

Improvement was noted in 22 cases, irrespective of sex and age but not of duration; the tendency was, the longer the history the less the effect of thiouracil. Of these 22 cases, 12 could be classed as much improved, mainly in a clinical sense, although there was a corresponding march in physico-chemical changes, most notably in B.M.R. Three cases were so little improved as to require thyroidectomy, and in all three it will be noted that the thyrotoxicosis was of secondary type. Of the 21 primary cases recorded above improvement occurred in 19; of the 8 secondary cases, improvement took place in 2 only.

Effects on the Thyroid Gland

Enlargement.—In those cases with marked goitre further enlargement of the thyroid gland was noted after the 7th day—which constituted the peak period—afterwards declining to a size somewhat above that before treatment. In one case (No. 26) the neck enlarged from 31.4 cm. to 36.2 cm. and remained at that girth long after all symptoms had gone and physico-chemical measurements had returned to normal.

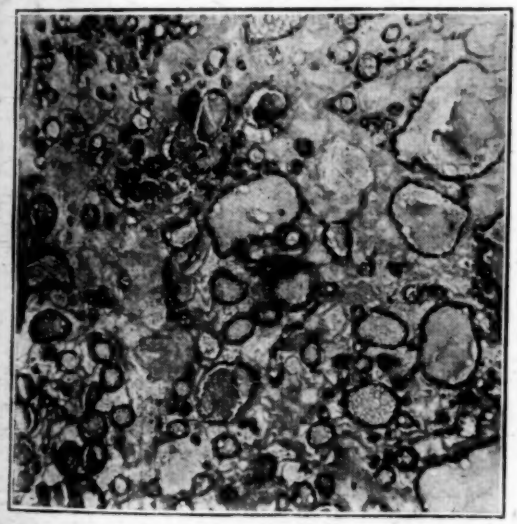

FIG. 1.—Case 14816. Photomicrograph of section of thyroid gland. (× 175.)

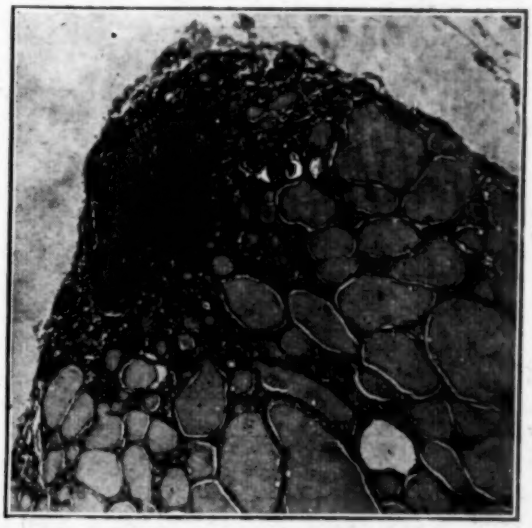

FIG. 2.—Case 14766. Photomicrograph of section of thyroid gland. (× 175.) (Photos by E. L. Murray, A.R.P.S.)

Microscopical Appearance.—In 2 cases we have had an opportunity of examining sections of the thyroid gland removed at operation, undertaken because of the failure of response to thiouracil. Photomicrographs (Figs. 1 and 2) are here shown, and the pathologist (C. V. Harrison) reported as follows:

"14816.—Macroscopically, the thyroid was enlarged and nodular, and showed plentiful colloid. Some of the nodules showed signs of

Table of Results

Case No.	Sex	Age	Type and Duration of Lesion	Thiouracil: A, Days on Drug B, Grammes — I.P.	Thiouracil: A, Days on Drug B, Grammes — O.P.	A, Weight B, Pulse C, B.P.	Mg./100 c.cm. in Blood of A, Sugar B, Cholesterol	B.M.R.	Remarks
1	F.	24	Primary, 1 year	A, 35 B, 7·5	31 6	A, 127–128½ lb. B, 70–52 C, 130/70–110/60	A, 94– 86 B, 98– 85	+19% to −2%	Improved. Fibrillation. No recurrence after 18 months
2	F.	22	Primary, 3 months	A, 24 B. 6·5	— —	A, 96–98½ lb. B, 92–80 C, 120/80–95/75	A, 123– 82 B, 133–208	+28% to −11%	Improved. Recurrence after 14 months without treatment
3	F.	50	Primary, 1 year	A, 26 B, 7·5	30 5·5	A, 118½–114½ lb. B, 88–72 C, 158/85–110/80	A, 127– 91 B, 95–103	+26% to +7%	Improved. No recurrence after 16 months
4	F.	26	Primary, 18 months	A, 25 B, 10·5	— —	A, 122½–129½ lb. B, 100–68 C, 145/65–110/60	A, 83–103 B, 74–130	+27% to +4%	Improved. No recurrence after 17 months
5	M.	57	Primary, 7 months	A, 10 B, 6	107 31·5	A, 110–130 lb. B, 110–78 C, 140/90–130/80	A, 92–105 B, 150–220	+42% to +7%	Much improved
6	F.	66	Primary, 7 months	A, 51 B, 11	40 8	A, 114½–115 lb. B, 108–72 C, 200/100–185/90	A, 68–109 B, 165–180	+34% to +3%	Improved
7	F.	30	Primary, 7 months	A, 46 B, 37·5	78 12·5	A, 122–134 lb. B, 84–88 C, 130/80–125/75	A, 80– 82 B, 130–137	+31% to +9%	Improved
8	M.	40	Primary, 3 months	A, 44 B, 71·5	80 9·6	A, 127–134 lb. B, 94–80 C, 135/90–125/80	A, 76– 96 B, 85– 88	+23% to +1%	Improved
9	M.	54	Primary, 4 months	A, 38 B, 84	197 72·4	A, 145–152 lb. B, 90–78 C, 120/65–120/75	A, 68–105 B, 193–196	+25% to +9%	Improved
10	M.	40	Primary, 6 months	A, 45 B, 33	130 18·5	A, 156–183½ lb. B, 100–78 C, 145/75–120/60	A, 103– 78 B, 75–220	+49% to +7%	Very much improved
11	M.	28	Primary, 2 months	A, 18 B, 18	268 126	A, 128–165 lb. B, 120–60 C, 190/100–115/70	A, 109– 75 B, 72–155	+36% to +4%	Much improved
12	F.		Post-thyroidectomy Recurrence Secondary	A, 20 B, 9·6	40 13	A, 127–125 lb. B, 120–70 C, 160/70–100/60	A, 83–136 B, 162– 96	+29% to −2%	Better
13	F.	23	Primary, 6 months	A, 32 B, 21	50 7·1	A, 94–152 lb. B, 96–68 C, 130/90–90/40	A, 86– 74 B, 138–172	+51% to −3%	Much improved
14	F.	54	Primary, 1 year	A, — B, —	147 73	A, 132½–148 lb. B, 84–76 C, 120/90–130/70	A, 87– 93 B, 130–142	+26% to +1%	Much improved
15	M.	34	Primary, 1 year	A, 17 B, 7	171 137	A, 121–126 lb. B, 104–73 C, 135/80–120/70	A, 122– 91 B, 85–186	+26% to +4%	Improved
16	F.	37	Primary, 1 year	A, 19 B, 7·8	— —	A, 116½–114 lb. B, 94–88 C, 130/70–110/60	A, 103– 98 B, 108–133	+42% to +37%	I.S.Q. Drug fever
17	M.	38	Primary, 18 months	A, 28 B, 28	56 14	A, 160–180½ lb. B, 88–74 C, 158/100–110/70	A, 88– 72 B, 96–128	+34% to +3%	Much improved
18	F.	23	Primary, 1 year	A, 15 B, 12	40 8	A, 100–104 lb. B, 88–76 C, 140/70–130/75	A, 107– 71 B, 108–133	+72% to +11%	Improved. Agranulocytosis
19	F.	51	Primary, 14 months Recurrence 6 months later	A, 90 B, 45 A, 29 B, 16·5	25 7 58 21·5	A, 77–92½ lb. B, 100–76 C, 190/70–120/75	A, 250–103 B, 122–207	+27% to +3% +30% to +7%	Much improved Remission on stopping treatment after 4 months
20	F.	44	Primary, 5 months	A, 33 B, 25·8	40 18·6	A, 98–103 lb. B, 88–72 C, 115/90–100/60	A, 75– 72 B, 125–140	+38% to +4%	Better
21	M.	46	Primary, 8 months	A, 20 B, 9·5	75 28·4	A, 136–136½ lb. B, 98–76 C, 220/185–185/165	A, 81– 84 B, 122–140	+30% to +8%	Improved
22	F.	43	Post-op. Recurrence 1 year Primary	A, 21 B, 8·4	186 74	A, 149–146 lb. B, 116–88 C, 150/80–130/80	A, 80– 76 B, 103–202	+26% to +12%	I.S.Q.
23	F.	28	Secondary, 14 months	A, 38 B, 10·5	— —	A, 106–111 lb. B, 96–70 C, 110/70–110/80	A, 97– 98 B, 122– 78	+54% to +43%	I.S.Q.
24	F.	60	Secondary, 2 years	A, 33 B, 28	20 6·5	A, 102–104½ lb. B, 96–76 C, 170/85–130/65	A, 123–115 B, 80– 82	+39% to +32%	I.S.Q. Marked neutropenia. Thyroidectomy
25	F.	44	Secondary, 3–4 years	A, 47 B, 17	— —	A, 91–94 lb. B, 96–66 C, 135/85–90/60	A, 96– 75 B, 100–141	+32% to +2%	Little improved. Thyroidectomy
26	F.	49	Secondary	A, 30 B, 22	— —	A, 118–121½ lb. B, 88–76 C, 165/80–135/80	A, 148–127 B, 120–140	+47% to +39%	I.S.Q. Scarlatiniform rash

Table of Results (concluded)

Case No.	Sex	Age	Type and Duration of Lesion	Thiouracil: A, Days on Drug B, Grammes I.P.	Thiouracil: A, Days on Drug B, Grammes O.P.	A, Weight B, Pulse C, B.P.	Mg./100 c.cm. in Blood of A, Sugar B, Cholesterol	B.M.R.	Remarks
27	F.	23	Secondary	A, 10 B, 5	32 11·1	A, 86½–85½ lb. B, 78–70 C, 110/70–80/60	A, 187–250 B, 640–533	+19% to +10%	Slight improvement Thyroidectomy
28	F.	24	Secondary; recurrence following radium one year before	A, 28 B, 14	40 7	A, 137–140 lb. B, 80–70 C, 150/90–125/70	A, 105– 82 B, 87–164	+27% to −12%	Much improved
29	F.	38.	Secondary, 18 months	A, — B, —	240 70	A, 118–126 lb. B, 120–84 C, 130/70–130/70	A, — B, —	—	Much improved

degeneration. Microscopically, the gland is broken up into nodules by fibrous bands, but lymphocytic infiltration is minimal. The acini are variable in size, but are all in a resting stage with colloid storage. There is hyaline degeneration in the stroma between the acini.

14766.—Macroscopically, the gland was enlarged and nodular and contained plentiful colloid. Microscopically, the gland is broken up into nodules by bands of fibrous tissue. It shows quite numerous foci of lymphocytic infiltration, many with germinal centres. The thyroid acini are mostly enlarged and filled with colloid, and show a resting epithelium; only a few showed any signs of hyperplasia."

From the work of Moore *et al.* (1944) at the Massachusetts General Hospital on 34 cases treated with thiouracil as a pre-operative drug we know that the most prompt clinical response occurred in those patients whose thyroids, on histological examination, showed marked hyperplasia with a low colloid content. It is interesting to observe that those two cases of ours which responded badly to thiouracil both had thyroids in which involutionary changes predominated over hyperplasia.

Toxic Effects of Thiouracil

Symptomatic.—Although nausea and occasional vomiting were experienced in the earlier cases treated by us with thiourea, we have not seen this occur with thiouracil. The chief symptoms noted have been vasomotor—faintness, flushing, and vague muscular pains in the chest, head, and neck.

Granulocytopenia.—Nearly every case we have treated has shown an absolute granulocytopenia (of varying degree) with relative lymphocytosis, usually from the 7th to 10th day. When the white count falls to around 4,500 per c.mm. (with lymphocytes over 40%), cessation of the drug for 3 to 4 days is usually enough to cause the count to return to normal, and when this occurs the drug can be started again without untoward effects.

Agranulocytosis.—Only one of our cases (No. 18) developed a true agranulocytosis, although two others (Nos. 12 and 24) developed such severe neutropenia as to warrant active therapy. The striking fact in this case was the rate of development of the agranulocytosis; although blood counts were done on alternate days, the white count fell to *nil* in 24 hours. The cause would appear to be overdosage rather than a personal idiosyncrasy; because this girl began again with her thiouracil and has since had 20 g. without ill effects. This case is also of interest because the patient developed her agranulocytosis 23 days after treatment—contrary to Himsworth's general rule that such cases usually develop during the first 14 days. In all three cases extract of yellow bone-marrow given by mouth was found to be of most value in restoring the white count to normal.

Purpura.—Severe thrombocytopenic purpura has been described by Newcomb and Deane (1944). One of our cases, that of a female diabetic aged 58, developed a marked purpuric rash after 18 days' (16.5 g.) treatment with thiouracil. The blood picture was as follows: thrombocytes, 360,000 per c.mm.; coagulation time 5½ minutes; bleeding time, 9 minutes; Hess's test strongly positive. The condition abated on cessation of the drug.

Drug Fever.—St. Johnston (1944) has reported 3 cases of drug fever in his series of 7 cases treated with thiourea. In our series we have had one such case (No. 16). This patient, after 8 days' therapy (14 g.), began to complain of headache, nausea, painful glands in her neck, and sore mouth and eyes; her temperature rose to 102.2° F. and her pulse to 124. Her face was flushed, with numerous small white blebs over both cheeks, her eyelids were red and swollen, her mouth showed many small white ulcers, her submandibular and axillary glands were large and shotty; there was no splenomegaly; the skin over her thorax and abdomen had a fine maculo-papular rash. Her white count at this time was 7,400 per c.mm., of which polymorphonuclear cells were 68%, lymphocytes 17%, monocytes 2%, and eosinophils 13%. On cessation of the drug the symptoms abated, but on starting again—on two separate occasions—the signs and symptoms returned. This case differs from those described in showing ulceration of the mouth, eosinophilia, and absence of both splenomegaly and neutropenia.

Other Rashes.—Several of our cases have shown rashes, which were of two main types—maculo-papular, as in the woman described above, and scarlatiniform (Case 26).

Effects of Thiouracil in Cases Other than of Thyrotoxicosis

Hypertension and Diabetes Mellitus.—On the basis of reduction both of blood pressure and of blood-sugar level in cases of thyrotoxicosis, we measured the effect of thiouracil on a group of cases suffering from these conditions. Six cases of essential hypertension were treated for varying periods with little or no response. Its value in diabetes is also disappointing, although we found that its use in diabetes with mild thyrotoxicosis allowed of a reduction in the amount of insulin formerly required.

Cardiac Failure.—Blumengart *et al.* have suggested subtotal thyriodectomy in severe cases of cardiac failure, on the assumption that by reduction of B.M.R. the work of the heart is diminished. On this principle we tried to decrease the activity of the thyroid in two cases of cardiac failure; one case was treated for 30 days (22 g.) with no apparent improvement. We reached the conclusion that thiouracil is of value only in those cases of cardiac failure which have a thyrotoxic basis. Cases of auricular fibrillation of thyrotoxic origin may be controlled by thiouracil with a return to a normal rhythm; this was seen in Cases 1 and 19.

Myxoedema.—In an attempt to discover the mode of action of thiouracil we gave it to a patient with myxoedema. She received 26 g. in 26 days. There was no change in her blood sugar or cholesterol levels, her B.M.R. rose from −40% to −37%, and she lost 4 oz. in weight.

Summary

Of 29 cases of thyrotoxicosis treated with thiouracil improvement was noted in 22, while 12 were classified as much improved.

Of the 21 cases of primary type, improvement was noted in 19, and of the 8 secondary types in 2 cases only.

The effects on the thyroid gland are discussed and photomicrographs after thyroidectomy shown.

Toxic effects are discussed.

The effects of thiouracil in cases other than thyrotoxicosis are recorded.

Our thanks are due to Messrs. Ward, Blenkinsop and Co. for their generous supply of thiouracil in the early days, and to Dr. C. V. Harrison for his reports on the sections.

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THE ROLE OF ANIMAL-TYPE DERMATOPHYTES IN HUMAN RINGWORM

BY

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A feature of dermatology in recent years has been the increased incidence of fungous diseases. Attention has been drawn to the fact that ringworm infections in particular are seriously increasing (Ingram, 1944) and that ringworm of the scalp, which had become a comparatively rare disease, is again threatening to attain epidemic proportions.

Comment has never been lacking on the association of ringworm in man with animal contacts and on the finding of "animal-type" fungi in human lesions. Possibly because it is not always easy to trace the infection from animal to man, this association has been presented in the light of an uncommon occurrence. It is our belief that the importance of the animal source of infection in human ringworm has been insufficiently stressed in this country, and that animal infections occur far more often than is commonly supposed. The mycological findings in ringworm specimens submitted to cultural methods of investigation show a high proportion of fungi hitherto considered unusual in human lesions, especially in ringworm of the scalp, and suggest either that we are witnessing an increase in the incidence of ringworm in man caused by dermatophytes usually parasitic on the lower animals, or that infection by these types of dermatophytes has in the past been incompletely assessed.

In a consideration of the epidemiology of ringworm a distinction is drawn between tinea circinata and tinea tonsurans. A survey of the literature shows that, in the former, animal sources of infection have been recognized from time to time; but in the case of tinea tonsurans the connexion appears not to have warranted any detailed consideration. Kinnear (1931) reported that the occurrence of infection of the scalp with microspora other than *M. audouini*, was very rare in this country. Ashton (1932), investigating the frequency of ringworm in cattle, concluded, after interviewing nearly 400 insurance practitioners, that ringworm derived from animals was not uncommon in certain districts, but chose particularly the glabrous skin rather than the scalp. More recent English publications (Roxburgh, 1944; Shanks, 1944) advocate treatment of tinea tonsurans only by *x*-ray epilation, and, except for suppurative cases, make no mention of the conservative method, which is permissible where the causative organism is an animal type.

The prevalence of the different types of pathogenic fungi is known to vary from country to country and, indeed, from locality to locality. Sabouraud was at pains to emphasize the frequency of animal-type infections in ringworm subjects in France. In the United States the importance of animal types of fungi has for long been realized. The practical significance of these epidemiological considerations was recognized by Lewis and Hopper (1937), who correlated and confirmed the findings of earlier American workers (Bloch, Jadassohn, Miescher, etc.). These had suggested that scalp infections caused by microspora pathogenic to animals are curable by topical methods alone. The topographical variability in the United States is well described by Wise and Sulzberger (1938). They point out that when one considers that in the west and south-west States almost all mycotic scalp infections are due to the "animal-parasite" fungus *M. lanosum*, while children in the cities of the eastern seaboard are mainly affected by *M. audouini*, the human form, it becomes at once comprehensible that the results of various types of prophylaxis, therapy, etc., must be completely different in different parts of the United States.

The role of *M. felineum* as a cause of ringworm in children has been investigated in Canada by Davidson and Gregory (1933). In a study of ringworm in Winnipeg they isolated species of microsporum from 75 children, 43 being *M. audouini* and 32 *M. felineum*. However, as 19 of the *M. audouini* isolations were from a single school outbreak, the authors considered that a fairer impression of the relative importance of the two species, in the area, would be given by a quotation of the number of outbreaks caused by each. These were: *M. audouini* 14, and *M. felineum* 24.

To attempt to estimate the incidence of animal-type ringworm in Great Britain is no easy matter, and one is forced to the conclusion that not enough evidence is obtainable from published records to support any dogmatic statement as to the relative frequency of the human and animal types. Sabouraud (1910) stated that the earlier English observers had not controlled their microscopical examinations by cultures. He asseverated that animal microspora were not rare in England, it being probable that the cases of tinea circinata ascribed by Adamson and others to *M. audouini* were in fact caused by animal dermatophytes.

Fox and Blaxall (1896a, 1896b) were the first workers to demonstrate the transmission of cat ringworm to man. They recovered *M. felineum* from 14 cases of ringworm, and were able to trace the infection to 11 separate sources.

Generally speaking, little has been done by culture tests to determine the types of ringworm fungi in Britain, apart from some local investigations. Tate and Hare (1928) examined specimens from L.C.C. schools and found *M. audouini* to predominate. Smith (1944) refers to the oft-quoted figure of 90% as representing the incidence of *M. audouini* in cases of tinea tonsurans. We have reason to believe, however, that infection by animal types of microspora is now much more frequent than this figure suggests. Duncan (1945) isolated 265 cultures of dermatophytes from unselected cases of human ringworm in various parts of England and Wales, but chiefly in the southern counties, and found that 58% were types usually parasitic on the lower animals. The genus *Microsporum* was represented by 211 cultures, of which 122 (57.8%) were of animal types (*M. felineum*, 74; *M. lanosum*, 48) and 89 of the human type (*M. audouini*).

Animal Contagion

Most of the common domestic animals have at different times been suspected of imparting ringworm to man. With animals, as with man, it is the young that are most susceptible to infection. *Calves* have probably been most often implicated, especially on the European continent, and it was in relation to them that the transmission of ringworm from animal to man was first described. In 1840, contemporaneously with an epizootic of ringworm among cattle, almost the entire population of the Swiss village of Andelfingen was known to have ringworm. A smaller outbreak was recorded in 1925 at the cattle-testing station at Pirbright, in this country. Despite specific precautions, five attendants were infected from diseased cattle. Ashton (1932) reached the following conclusions, *inter alia*, regarding ringworm in man.

1. It is the trichophyta rather than the microspora that are commonly communicated to man from cattle.
2. Young stock animals are chiefly involved.
3. Dogs and horses are also susceptible, goats and cats more rarely.
4. Direct contact with the animals or with posts, etc., they have rubbed against is the usual method of transmission.
5. The disease is often limited to the arms and forearms.
6. The prognosis is good and spontaneous cure may occur.

At the present time, while sporadic cases from calves are being constantly encountered, cattle ringworm does not present a problem of urban districts or a source of institutional outbreaks.

Grooms, farriers, and others were formerly often infected from *horses*. As in the case of cattle ringworm, in which adult males are the victims of contagion, tinea barbae is a typical manifestation of the affection. More modern methods of locomotion have rendered the horse an unimportant focus of ringworm infection nowadays, but it used to be otherwise. Tilbury Fox (1871) described an outbreak of ringworm involving seven men, who had received their infection from a pony, but even

in those days this plurality of victims was considered exceptional. Bunch (1901) was able to demonstrate cultural proof of connexion between two cases of human ringworm and their equine sources.

A *cat* was proved to be responsible for the biggest recorded "epidemic" produced by one animal. Roberts (1909) described how a kitten brought from Egypt communicated ringworm to 13 persons and another cat directly, and to a child and a dog indirectly. It was found possible to take specimens for culture from all those infected, and the same species of microsporum was isolated in each case. There is no dearth of evidence incriminating the cat in smaller outbreaks and sporadic cases. It is interesting to note how frequently a stray kitten has been taken into a household just before the occurrence of a case of ringworm in that house.

Whereas no textbook omits to refer to canine hosts, the friend of man seems to have been neglected in attempts to provide direct cultural connexion with human ringworm. Sabouraud *et al.* (1908), in their work identifying *M. lanosum* with *M. canis* (Bodin), noted that a particular character of this microsporum is that it often gives rise to family epidemics. They instance an outbreak in a family of six persons, all with ringworm lesions. *M. lanosum* was recovered from five of the cases; the sixth was not seen. As to the source of the epidemic, they stated that a dog was accused, without proof, of this family outbreak. More recently in France, Stevenin (1937) has recorded three cases occurring in veterinary students; *M. lanosum* was found on culture in each case, but it was not possible to trace the infection to a particular animal. In England, Bunch (1901) included a terrier in his series, showing that the dog was infected with the same organism as he recovered from a case of kerion.

Our own experience in this respect is considered worthy of record. We have recently encountered an epidemic in which an adult and four children, directly, and four children and a cat, indirectly, were infected from a puppy (Table I). Conclusive

TABLE I.—*The "Island" Epidemic*

Case No.	Age	Contact	Condition	Lesions
1	8	Puppy	(a) Tinea circinata	(a) Twelve scattered circular scaly patches, about 1 cm. in diameter, on face. Multiple similar patches on chest, with uniform papulation. Limbs liberally covered with small papular and pustular microsporides.
			(b) Tinea tonsurans (developed subsequently)	(b) Patch, 1·5 cm. in diameter, in occipital region, almost devoid of hair and showing slight scaling
2	13	,,	Tinea circinata	Multiple minor healing lesions on face, neck, arms, and left thigh. On the right thigh a large fresh circular patch, papular and mildly erythematous
3	10	,,	,, ,,	Five discrete circular lesions on face. Diffuse scaling on neck. Multiple scattered papular microsporides on limbs. Large solitary patch on front of chest
4	10	,,	,, ,,	Eight discrete circular lesions, ¼ cm. in diameter, on face, neck, chest, and arms
5	12	Case 2	,, ,,	Solitary raised circular patch with red papular edge and healed scaly centre on inner side of right upper arm
6	6	?	Tinea tonsurans	Circular patch, almost denuded of hair and covered with thick scales, in occipital region
7	11	Case 3	Tinea circinata	Red scaly lesion on right arm, 2·5 cm. in diameter, and with slight peripheral vesiculation
8	10	,,	,, ,,	One circular scaly lesion, 2 cm. in diameter, on thigh. Small peripheral papules

cultural evidence as to the essential unity of the outbreak was forthcoming in the cases of the eight children and the dog. Hull (1941) has averred that most reported cases of transmission between man and animals are open to criticism, as they are based on slim circumstantial evidence. Accordingly, we have made every effort to obtain direct evidence, where possible. The affected adult was unwilling to submit to examination, and the cat, domiciled next door, was destroyed after a diagnosis of ringworm had been made independently by a veterinary surgeon. Cases 1, 2, and 3 (Table I) were the children of the one adult concerned. All the patients lived in three neighbouring streets, in a part of the town which is known as the "Island" but which is, in fact, a peninsula separated from the main town by a causeway some 200 yards long. They all attended the same school, four of the girls being in one class. The puppy had been recently acquired, and was observed to be in what was described as a "mangy" condition when bought. No child had any skin lesions before the purchase of the animal, and we have not been able to trace any case of ringworm on the Island for at least 12 months previously. The puppy was a mongrel of uncertain origin and age. Inspection revealed gross involvement of its skin, the trunk being almost devoid of fur and the limbs and head only sparsely covered. The denuded areas were layered with an abundance of large flaky scales, which were easily detachable.

The causative organism in all these cases was found to be *M. lanosum*. In order to trace the subsequent course of the outbreak and to investigate the possibility of another focus of infection, all cases of suspected ringworm occurring in the immediate locality since, and also further afield in the area, have been examined and specimens taken for culture. It is a fact that, in 21 positive cultures over a period of eight months, *M. lanosum* has not once been found, though *M. felineum* has been frequent.

The subsequent unselected cases, 45 in all, yielded interesting information when specimens from them were submitted to culture. Table II shows the results in the 21 positive cultures,

TABLE II

Case No.	Age	Condition	Contact	Organism	Type
9	8	Tinea circinata	—	M. felineum	Animal
10	11	,, ,,	—	T. tonsurans	Human
11	9	Tinea tonsurans	—	M. audouini	,,
12	8	,, ,,	—	,,	,,
13	6	Tinea circinata	Calf	T. asteroides	Animal
14	7	Tinea tonsurans	—	M. felineum	,,
15	8	Tinea tonsurans and circinata	Kitten	,,	,,
16 (sister of 15)	10	Tinea circinata	Kitten (Case 15)	No specimen taken	,,
17	7	,, ,,	—	M. felineum	,,
18 (brother of 17)	3	Tinea tonsurans	Case 17	Culture negative	,,
19	8	,, ,,	Kitten	M. felineum	,,
20	35	Tinea circinata	Calf	T. discoides	,,
21	13	Tinea tonsurans	—	T. asteroides	,,
22	10	Tinea circinata	Kitten	,,	,,
23	5	,, ,,	Brother	,,	,,
24	1½	,, ,,	—	,,	,,
25	12	,, ,,	—	,,	,,
26	5	Tinea tonsurans	Case 11	M. audouini	Human
27	5	,, ,,	Case 26	,,	,,
28	13	Tinea circinata	—	T. asteroides	Animal
29	3	,, ,,	Kitten	,,	,,
30	12	,, ,,	—	,,	,,
31 (sister of 30)	9	,, ,,	—	,,	,,

and otherwise includes only the two instances of simultaneously affected siblings, in one of which no specimen was obtained for culture and the other giving a negative finding. The large preponderance of animal-type dermatophytes in all these sporadic cases is at once apparent.

Opportunities of examining the animal suspected of being the source of the various infections, by means of Wood's light, etc., have not often presented themselves, and obviously the majority of patients are able to describe some household pet. But we regard the frequent association of kittens and other young animals with cases of ringworm as more than coincidental. In Cases 15 and 16, for instance, the destruction of their kitten because of a "diseased" coat, following the onset of these two cases, is unlikely to be fortuitous; and in Case 20 the patient, a slaughterman, explained that a few days previously he had dressed a calf's carcass, the coat of which had "alopecia." A colleague of his was said by him to be similarly affected.

Specimens from 22 patients gave negative results. Of these, 12 were on clinical examination considered to be probably ringworm. One girl—clinically our most certain case of ringworm—possessed two Persian kittens, which are reputed to be particu-

larly susceptible to ringworm. Another possessed a recently acquired kitten, and a third a puppy.

There remained 10 cases, which had specimens cultured on the off-chance of their yielding a ringworm fungus, but which were probably not ringworm. Only one of these subjects possessed a kitten. Thus, quite apart from the Island cases, close contact with young animals was found in 12 out of 35 cases of proved or probable ringworm. No pretence is made that statistical significance can be read into such small numbers, but they do tend to confirm the suggested infectivity of young animals, already referred to.

Two other points must be borne in mind when assessing the importance of animal contagion. On the one hand, older animals may play some part in the transmission of infection. Sabouraud *et al.* (1908) found that the average age of 15 dogs with ringworm was 23 months. On the other hand, animal-type fungi can be transferred between human beings, but opinions differ as to the proportions thus communicated. Lewis and Hopper (1937) point to this facility of transmission from man to man as a method of distinguishing between animal and human types of infection. Thus the ease with which human types pass between human beings, and animal types between animals, is in contrast with the smaller risk of contagion from man to animal and animal to man. This fact is borne out in our Island series. The four primary cases were all grossly infected, the four secondary cases showed only solitary lesions, and we have been able to trace no transmission from these to tertiary cases. Obviously the profusion of the pathogen accounts for the severity of the directly infected persons. The areas of their bodies affected were chiefly the chin, the neck, the upper part of the chest, and the front of the forearms—i.e., the areas of contact with the puppy when they nursed it, as apparently was often the case.

Nature of Lesions

As regards the glabrous skin, the wide variability of the lesions has often been described. As long ago as 1871 Tilbury Fox pointed out that ringworm of the surface varies considerably in aspect, from a mere desquamating erythema to a pustulating surface resembling, and apt to be mistaken for, eczema, there being many transitional herpetic forms. In his pony cases the severity of the lesions was considered to depend on the profusion of the fungus implanted on the skin, and our puppy cases correspond with this. Despite the variability in clinical appearances, the typical ringworm patch—circular, faintly erythematous, with central scaling and peripheral papulation—was most frequently encountered.

Infection with animal-type fungus is considered to produce more inflammatory lesions on the glabrous skin, to be more resistant to treatment, and, as already mentioned, to be less contagious. No great difficulty is experienced in clearing up the smaller solitary lesion of either animal or human type, but the severer infections, in which microsporides are present, may prove refractory. The time taken to cure the four primary puppy cases varied between five and ten weeks.

The clinical appearances in ringworm of the scalp often make it possible to distinguish between animal and human types of infection. The classical description of tinea tonsurans met with in the various textbooks applies particularly to those cases in which *M. audouini* is the pathogen. The typical patch shows as a greyish and scaly area, with hairs broken off to about one-eighth of an inch. These stumps have lost their elasticity and, being bent in different directions, have an appearance described as "stubbled corn." Erythema is not marked, there is rarely swelling, and oedema and pustulation are absent. The patch may increase in size to involve almost the whole of the scalp, but will be found to have a clear-cut circumscribed growing edge.

Generally the animal types of infection produce an inflammatory appearance. The skin is reddened, often swollen, almost devoid of hair, and occasionally surmounted by pustules, without necessarily reaching the grossly suppurative condition known as kerion. The few remaining hairs are easily removed with forceps. Exceptions to this general description are met with, and in the two *M. lanosum* cases (Nos. 1 and 6) erythema was entirely absent. Yet these two children, whose parents refused treatment, went on to achieve a spontaneous cure. Multiple patches have been commoner than single ones in these animal-type cases. The larger patches sometimes evidence pustulation, while the smaller lesions in the same case may be erythematous only.

Treatment

The treatment of tinea circinata merits no special description. The number of fungicidal preparations is legion and most of them are effective. We have found, for routine treatment, that Whitfield's ointment is quite efficacious, and we have not had recourse to the more elaborate proprietary remedies.

It is in cases of tinea tonsurans, however, that the importance of distinguishing between human and animal types finds its greatest application. In the former group epilation by means of *x* rays is the method of treatment that holds pride of place, and its value is indisputable. Many consider that thallium acetate should no longer play a part in the treatment of ringworm of the scalp, and the Ministry of Education does not sanction its use. There are also objections, however, to the use of *x* rays, and the following may be mentioned.

1. There may be failure of re-growth. Shanks (1944) reports that, with modern apparatus and accurate dose calibration, these accidents are now rare. With less skilled workers the number of cases of permanent alopecia rises.

2. A period of some five to six months is required before a full growth of hair is obtained, and the more sensitive children, especially girls, object to returning to school at the end of one month after treatment, which is the minimum time in which they may be allowed to do so.

3. Apparatus is not everywhere available, and, particularly under present conditions, treatment is unobtainable in some districts.

4. *X* rays are unsuitable for very young children.

The group of scalp infections attributable to an animal dermatophyte differs from the human type in being amenable to treatment by topical measures alone. In this country it had been usual to restrict these conservative measures to suppurative cases. Of the nine cases of animal-type scalp ringworm (Table III), four at some stage showed evidence of slight pustulation.

TABLE III.—*Tinea Tonsurans Cases*

Case No.	Organism	Mode of Cure
1	M. lanosum	Spontaneous
6	"	"
11	M. audouini	*X*-ray epilation
12	"	"
14	M. felineum	Conservative
15	"	"
17	"	"
18	Probably M. felineum	"
19	M. felineum	"
21	T. asteroides	"
26	M. audouini	*X*-ray epilation
27	"	" "

and five were non-suppurative. As previously mentioned, two of these underwent spontaneous cure in eight and thirteen weeks respectively. The remainder received topical treatment and were cured in periods varying from four to eight weeks, but it was not considered that these times were minimal. Cure was assessed by negative response to Wood's light, negative result to direct microscopy, and, in one doubtful case, negative culture, all treatment having been discontinued for seven days. On the affected patches new hair grows slowly and does not keep pace with the re-growth of the rest of the scalp.

The routine treatment adopted was similar to that described by Sutton and Sutton (1941) as follows:

1. Close clipping of the hair over the whole scalp.

2. Daily shampoo with ordinary soap.

3. Epilation of hairs from the affected patches and from a narrow margin around the patches, the hairs extracted being carefully burned.

4. Application daily of an ointment containing 6% precipitated sulphur and 4% salicylic acid. This may be rubbed into the lesions so long as no untoward reaction is observed.

5. The wearing of a clean linen cap, which should be renewed daily.

The willingness of the parents to co-operate in this somewhat elaborate toilet had previously been doubted, but with the

exception of the two cases in which they refused any treatment, their response was surprising and gratifying. Their aim was to get the child back to school in the shortest time.

Discussion

It is apparent that the type of infection has considerable prognostic significance, and that the lesions produced by dermatophytes pathogenic to animals are those likely to be cured spontaneously or without great difficulty. It has been indicated that, of the human type of fungi, *M. audouini* is very resistant to treatment and is a common offender in this country, but it must be noted that Livingood and Pillsbury (1941) have shown that even *M. audouini* infections have occasionally been known to heal spontaneously, sometimes before puberty, if left long enough. Much less common, but even more resistant to treatment, are the endothrix trichophyta (e.g., *T. tonsurans, T. sabouraudi*). The ectothrix trichophyta (e.g., *T. asteroides*), representing animal infection, while producing more violent local inflammatory reaction, are easily amenable to treatment.

In the United States, Lewis and Hopper (1943) go a stage further in their adherence to conservative methods of treatment. They divide their scalp ringworms into resistant and non-resistant groups of infection. The non-resistant cases are those which respond to local therapeutic measures, and include not only those produced by animal dermatophytes but also those human-type infections which produce, among other symptoms, markedly inflammatory reactions. In the resistant group such simple measures are unlikely to succeed. Nevertheless even here manual epilation under filtered ultra-violet rays, followed by the application of adhesive plaster, has, in their experience, been found adequate treatment for some small patches of tinea tonsurans.

From the preventive aspect attention should be paid to animals which are likely to be infected with ringworm. It may be difficult to get a patient to part with his pet (the Island puppy still lives), but he can be induced to consult a veterinary surgeon, and treatment of the animal instituted. Wooldridge (1934), advocating the use of Wood's light by veterinary surgeons, makes it clear that a careful search is indicated before absolving an animal from a charge of ringworm. He points out that in the cat there may be no loss of hair, and that the small size and general hidden character of the lesion, coupled with the fact that there is little irritation, may result in its being easily overlooked even on close inspection. It would be advantageous if the introduction of kittens, particularly stray ones, into a community of children could be preceded by such an examination. As a further precaution, animals belonging to households containing ringworm should not be sold or allowed their freedom.

Finally, the advantage of cultural methods in diagnosis, which provide the only means of identifying the species of the infecting fungus, must be obvious to all, and they should be used whenever practicable. In the borderline cases, where there is no clinical indication as to the type of infection, it is submitted that the patient should be given the benefit of the doubt and only conservative treatment undertaken. Culture on a larger scale will eventually give valuable information as to the organism predominating in a particular area, and knowledge of this will be a further pointer in diagnosing between animal and human types of infection.

Summary

The position of ringworm infection with animal-type dermatophytes in this country is reviewed.

Well-authenticated cases of the transmission of ringworm from animal to man are described.

An account is given of a recent particular outbreak in which five persons directly and four persons indirectly were infected from a puppy, the association being proved by cultural investigation.

Some 20 subsequent cultures, taken from patients in the same area, are discussed and the type of organism given.

Clinical findings are described.

Treatment of tinea tonsurans is discussed, and stress is laid on the importance and practicability of treating by conservative methods scalp ringworm produced by animal-type fungi.

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NERVE INJURIES IN CHILDREN

BY

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Injuries of the peripheral nerves in children are fortunately rare, but when they do occur they present certain peculiarities so unexpected that it appears worth while to describe two recent cases. Both were injuries of the deep branch of the ulnar nerve due to deep penetrating wounds by glass fragments, in both suture was undertaken after healing of the original wound and the full establishment of degeneration and paralysis, and in both recovery was rapid and complete.

Case I

Mary S., aged 10, was referred to me by Dr. Riddoch with the history that six months previously she had fallen while holding a glass vase. The glass broke and penetrated the palm of the right hand, just below and lateral to the pisiform bone. A small healed scar showed the point of entry. Sensation was normal, but there was complete paralysis of all the muscles of the hand supplied by the deep branch of the ulnar nerve; Froment's sign was present.

Through a curved incision, lateral and distal to the pisiform, the deep structures of the wrist and palm were exposed. The main trunk of the ulnar was first identified and the cutaneous branch seen to be intact. On following the deep branch it was found to be completely divided, ending in a small end-bulb. The distal portion, also with a small bulb, was found with ease, and after removal of the bulbs suture was effected with very fine catgut. Healing was normal, and ten months later recovery of all the small muscles appeared to be complete and the function of the hand normal. At the time of operation the great size of the nerves and the facility of suture were remarked.

Case II

John M., aged 6, was cut by glass in an air raid, a wide deep wound extending across the inner border of the right hand just below the wrist. A large deep scar remained. Sensation was lost in the ulnar area of the hand and there was paralysis of all the small muscles supplied by the ulnar nerve; Froment's sign was present.

It seemed doubtful if in such a small hand suture could be effected, but on exposing the tissues in front of the wrist the ulnar nerve was found to be of almost adult size and quite out of proportion to the other structures. The deep and superficial branches were followed with ease and both were found to be completely divided, ending in bulbs. The distal portions were found without difficulty and suture of each was effected in the usual manner. A year later there was complete recovery both of sensation and of movement, and the function of the hand appeared to be perfectly normal.

Commentary

These two cases give rise to several curious observations. It would appear that the peripheral nerves in a child are out of all proportion to the other structures, and indeed approach adult dimensions. On reflection it is what one would expect on

developmental grounds, since the nerve cells are almost unique in their individual persistence throughout life, but, so far as I am aware, the fact has not been recorded nor its surgical importance appreciated. The discovery of even small nerves among the minute structures of a child's hand is thus easy. Their rapid recovery is to be expected from the superior vitality of a child.

Complete recovery after suture of the ulnar nerve is very unusual, if it ever occurs, but this is due to the fact that it is a mixed nerve, and not, as has been suggested, to the smallness and delicate function of the muscles it supplies. The deep branch is a purely motor nerve, and with it one may reasonably expect complete recovery, as occurs after suture of other purely motor nerves such as the posterior interosseous and in a great degree the musculospiral.

In such small hands the diagnosis of a nerve injury is not easy and Froment's sign is invaluable. The best way to elicit it is to pull on a card with the finger and thumb of both hands. Normally the powerful adductor muscle of the thumb is used and the thumb remains flat, but in ulnar paralysis this muscle is not available and an attempt is made to replace it by using the long flexor. This, however, flexes the terminal joint of the thumb, producing Froment's sign. A sign which can be recognized by the patient himself is of real value, particularly if its disappearance is associated in the infant mind with the hope of financial reward.

It is hoped that these experiences may encourage others to deal with an injury which if untreated has such grave consequences to the patient and which at first sight appears to involve difficulties which one might well regard as insuperable.

SCIATIC "NEURITIS"

BY

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It is now generally accepted that the commonest cause of chronic pain in the distribution of the lumbo-sacral nerve roots is a rupture of a lumbar intervertebral disk, but there has been much discussion during the past few years between the exponents of the "disk" and "neuritis" theories of the causation of lumbo-sacral root pain. For instance, Dandy (1943) believes that, apart from tumours of the cauda equina and bony disease of the spine, sciatic pain is invariably caused by a ruptured disk or a "concealed" disk. Symonds (1943) has stated that "the vision of an inflamed and swollen sciatic nerve, so confidently stated to be the cause of the syndrome in question, has never yet been granted to human eyes." On the other hand, Bankart (1943) has expressed the opinion that "neuritis" is the commonest cause of sciatica. He believes that the neuritis arises from a spread of periarticular inflammation in spinal arthritis to the nerve roots in the intervertebral foramina.

It seems clear, from reading the voluminous literature on the subject, that much of the variation in opinion of different authorities, neurological and orthopaedic, is due to lack of a common definition of the term "sciatica." If the diagnosis of "sciatica" be applied less loosely to cases of posterior crural pain and used only when there is evidence of a lesion of a lumbo-sacral nerve root we believe that a much more accurate clinical classification will be possible. This narrowing of the definition to "lumbo-sacral root pain" is particularly valuable when surgical treatment may be contemplated, and has previously been suggested by Pennybacker (1942).

Since we treated our first cases of ruptured lumbar intervertebral disk in 1938 we have modified our original views on the frequency of this lesion as a cause of chronic lumbo-sacral root pain, but we are in agreement with those who state that it is the commonest cause of the syndrome. In a series of 50 cases, which we have followed up and which were investigated clinically and radiologically by myelography and eventually submitted to operation, the incidence of ruptured disks was 44%. All our cases had signs of a root lesion, but at operation we encountered many conditions other than ruptured disks. The purpose of this article is to report three cases of sciatic "neuritis" in which the lesion was found at operation and was clinically indistinguishable from a ruptured disk before operation.

We have on two occasions found a swollen oedematous nerve root, and once seen adhesions around the root in the spinal canal. In none of these cases was there any evidence of a ruptured or "concealed" disk on careful exploration of the intervertebral space, although this had been the pre-operative diagnosis; neither was there any evidence of spinal arthritis in the apophysial joints. For obvious reasons we cannot submit any histological evidence of "neuritis," but there was ample visual evidence of oedema of the nerve roots in two of the cases, and in the third the adhesions around the root were easily seen and freed. It would of course be possible to remove a piece of posterior nerve root for histological examination, but we have not thought it advisable to subject our patients to this procedure.

Case I

A miner aged 34. First seen Nov. 14, 1944, complaining of low lumbar backache, which had been present intermittently for twelve months. Says he "twisted his back" five months previously. He had occasional numbness and tingling in the two outer left toes, but definite posterior crural pain did not appear until after a period of physiotherapy. Lumbar pain was increased by sharp movements. Lasègue's sign present in left leg. Left ankle-jerk diminished. Slight objective sensory loss on outer border of left foot when leg was raised. No muscular wasting. No improvement after physiotherapy. Straight skiagrams of lumbar spine showed slight osteoarthritic lipping of adjacent anterior borders of 3rd and 4th lumbar vertebral bodies, but no thinning of the disk spaces or arthritis of the apophysial joints. Myelography after the injection of 5 c.cm. of "fluid" neohydriol showed a defect of filling of "axillary pouch" of left first sacral nerve root opposite disk between L 5 and S 1. C.S.F.: No cells; protein, 55 mg. per 100 c.cm.; W.R. negative.

Operation.—Jan. 22, 1945. Interlaminar approach on left side between L 5 and S 1. First sacral nerve root found to be thickened to about three times normal size. This was at first thought to be due to a neurofibroma of the root, but on incision of the dural sheath no tumour was found; the root was swollen and oedematous. Further decompression was made by excision of the ligamentum flavum and parts of the laminae adjacent to the opening. The intervertebral disk was explored. No extrusion could be seen, and no softening of the disk was found after incising the posterior longitudinal ligament and inserting a sharp spoon. Most of the iodized oil was removed with a syringe before closure of the wound. The patient had intense sciatic pain after the operation, which subsided gradually in about ten days, but since that time he has had no pain and has returned to full work as a miner. Lasègue's sign and the slight sensory loss had disappeared before his discharge from hospital on Feb. 12.

Case II

A male school-teacher aged 35. First seen March 20, 1945. A year ago had pain in left buttock, and left leg felt "stiff" in mornings. Occasionally had a shooting pain down back of left leg. Pain lasted throughout the summer, but later improved after physiotherapy. About a month before he was seen the pain recurred after a period of complete freedom, but much more severely. He had to be carried into hospital. Pain down back of left leg was increased by coughing and sudden movement. He says that before the onset of the pain a year ago he lifted a heavy sack and felt some strain in his lower back. On examination Lasègue's sign at 30° on left side. Pain also produced in left leg by raising right leg to 60°; left ankle-jerk diminished; scoliosis to left; slight hypo-aesthesia on outer border of left foot and shin; slight tenderness over sciatic nerve in left thigh; no muscular wasting. C.S.F.: 4 lymphocytes per c.mm.; protein, 30 mg. per 100 c.cm.; W.R. negative. Myelography by Dr. Stanley Nowell showed a notched filling defect on left side opposite disk between L 5 and S 1. There was no evidence of thinning of the disk or arthritis of the apophysial joints.

Operation.—March 28. Left interlaminar approach. No disk extrusion found and no softening of disk on incising posterior longitudinal ligament. Left first sacral nerve root showed definite swelling and oedema. The decompression was enlarged by slight excision of the laminae laterally.

This patient also had severe sciatic pain for a week after the operation and some retention of urine. The pain recurred in attacks for several days and then subsided. He returned home on April 17 and later resumed work, but he is not yet entirely free from pain although

not severely disabled. The iodized oil was not removed at operation, and a further film taken before his discharge from hospital showed that the notched filling defect remained in the same position as before.

Case III

A housewife aged 44. First seen July 20, 1944. Had had recurrent left sciatic pain for four years. Pain increased by coughing. Lasègue's sign present and left ankle-jerk diminished. No sensory loss or muscular wasting. C.S.F.: No cells; protein, 40 mg. per 100 c.cm.; W.R. negative. Myelography of the lumbar region showed a slight asymmetry of filling of the first sacral "axillary pouches," with less filling on the left side. No bony abnormality was seen and there was no narrowing of the disk spaces.

Operation.—Sept. 22. Laminectomy of L 4 and L 5. No evidence of disk protrusion on careful exploration of both disk spaces. No softening of disks found. Fine adhesions clearly seen on left first sacral root within the spinal canal. These were freed and the root mobilized. The patient made a rather slow recovery from her pain over three weeks and has remained free from pain since.

Comment

In the first case the swelling of the root was so gross that we were satisfied that it must have been due to a local tumour or very severe oedema. As there was no evidence of any disk protrusion or other cause of external pressure a longitudinal incision was made into the nerve root, which was found to be pale, homogeneous, and oedematous. The enlargement was more than sufficient to cause the defect seen in the myelograms. The prolonged and severe pain after operation is quite unusual in disk cases, but might well be expected with an inflammatory lesion.

In the second case the swelling was less marked, and we might not have felt so confident of the diagnosis but for the similarity to the first, especially in the post-operative course. In this case the iodized oil was left in the theca and, as would be expected, the filling defect persisted in a post-operative skiagram in spite of the decompressive effect of the operation.

The diagnosis of "neuritis" or "radiculitis" at operation is obviously very difficult unless gross enlargement of the root is present, and as these cases have occurred recently we think we may have missed a similar but less marked condition in some of our earlier and hitherto unexplained cases of root pain in which we found no lesion at operation.

It is impossible at this stage to arrive at any definite conclusion as to the cause of the oedema of the nerve roots which we have observed. We could find no evidence to suggest that it was due to the spread of inflammation from arthritis of the intervertebral joints. The mechanical explanation afforded by Dandy's conception of the "concealed" disk causing intermittent compression of the nerve root could perhaps be invoked to explain the oedema and even adhesions in these cases, but, as we have said, we could find no evidence of any abnormality of the disk, and we have not yet encountered any cases conforming to Dandy's description. Mechanical compression of a nerve root from narrowing of the intervertebral foramen or encroachment of posterior osteophytic outgrowths could conceivably cause the oedema we have observed, but one would expect radiological evidence of this to be visible, which it was not in our cases. Magnuson (1944) has discussed these aspects of the diagnostic problem.

If the lesions are inflammatory and no mechanical factor is concerned in their causation it is difficult to think of any condition which would affect isolated spinal nerve roots, apart from herpes zoster. There is some evidence that zoster can occur without a cutaneous eruption, but it is highly improbable that oedema of the affected nerve root would continue for many months even in those cases in which neuralgia persists. In this connexion we have recently seen a case of herpes zoster of the fifth lumbar nerve root after the removal of a fragment of a ruptured fourth lumbar disk. The patient was entirely free from pain on discharge from hospital, but returned a week later with a severe recurrence of his sciatic pain. It was at first thought that a further rupture of the disk had occurred, but within two days a herpetic eruption developed in the fifth lumbar area on the right leg. The severe pain lasted for about a week, but then subsided gradually and has not recurred.

We must leave the problem for further elucidation by observation of the "pathology of the living," as it is improbable that morbid anatomical studies will be available to provide the answer. At present we cannot differentiate these cases of "neuritis" from those with a ruptured disk before operation. We must for the moment be content with having seen a lesion which Symonds considers "has not yet been granted to human eyes."

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FOOD CONSUMPTION OF WORKING-CLASS AND LOWER-MIDDLE-CLASS FAMILIES IN BRUSSELS DURING JANUARY, 1945

BY

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Great concern has been shown regarding the feeding of the peoples in the occupied countries both during the German occupation and since their liberation. There have been many conflicting reports, and little reliable information has been published concerning the feeding position even in those countries which were liberated many months ago. This article gives an account of the feeding of a number of working-class and lower-middle-class families in Brussels during Jan., 1945, some four months after their liberation. It is felt that this description might assist in forming some general opinion concerning the feeding in other localities.

The rations supplied during the period chosen for this study were much the same as had been available for the whole of the period from the liberation in Sept., 1944, to Jan., 1945. They were, in fact, not greatly different from those allowed during the latter part of the German occupation, although during the first two winters of the occupation food had been in such short supply that famine oedema and other evidence of serious malnutrition were encountered in Brussels and other large cities (Bastenie *et al.*, 1944). Thus the data give a fair indication of what the people of medium economic status in Brussels have had to eat during the past two or three years. Wealthier families, by buying on the black market, have had more to eat, and others, through poverty, have had less.

Methods and Results

The information was obtained from records specially kept by 19 clerks or workers at a factory in Brussels, who noted all the purchases of food by their families during a period of one week from Jan. 8 to 14, 1945. The subjects also indicated whether the various items were bought legally or on the black market. The men were given a light midday meal at their place of work, for which they surrendered food coupons, and this was taken into account when assessing the diet of the families. No other source of food was available. Details of the composition of each family and of the income were also obtained. The excellent co-operation given by the men and by the social workers at the factory ensured that the information was reasonably reliable.

The families chosen for this investigation were those of 10 clerks and 9 workmen employed by a gas and electric company. Only men who were willing to co-operate were selected, but there was no reason, on this account, to suspect any bias whereby their diet was not generally representative of that of their economic groups as a whole. There was little difference between the incomes of the clerks and the workmen, the extreme limits being 2,066 and 4,100, with an average of 2,850, francs per month. (176 francs=£1.) The 19 families were composed of 70 individuals of both sexes and various ages.

TABLE I.—*Amounts of Food obtained by the Families in Brussels*

		Bread	Cereals	Potatoes	Fruit and Veg.	Meat Products	Fish	Milk*	Cheese	Butter	Marg.	Eggs†	Sugar	Preserves	Malt and Chicory
Legitimate market purchases	G. per head daily	348·1	5·4	501	250	20·2	47·1	23·6	1·8	3·7	11·9	0·11	37	26·5	7·0
	% of total	91·7	38·2	83·8	86·3	51·6	100	78·2	88·8	29·4	100	2·0	100	91·6	77·8
Black market purchases	G. per head daily	25·6	8·7	0	0	9·4	0	6·6	0·25	8·9	0	5·8	0	2·4	2·0
	% of total	6·8	61·8	0	0	23·8	0	21·8	11·2	70·6	0	98·0	0	8·4	22·2
Works supplement	G. per head daily	5·8	0	97	39	9·7	0	0	0	0	0	0	0	0	0
	% of total	1·5	0	16·2	13·7	24·6	0	0	0	0	0	0	0	0	0
Total	G. per head daily	379·6	14·1	598	289	39·3	47·1	30·2	2·05	12·6	11·9	5·91	37	28·9	9·0

* Expressed as grammes per head of milk solids.
† " " " fresh eggs. Average weight of one egg taken as 55 g.

The basic analysis of the results is shown in Table I, where the daily amounts per head of the various items of food from the three different sources are shown; the percentage of each item obtained from the shops legally, from the black market, and from the works canteen is also given. The bulk of the food was obtained legally. Nevertheless 11 of the 24 francs spent daily per head on food were spent on the black market. Calculation shows that a calorie cost about 6½ times as much on the black market as when legally obtained.

Table II gives a comparison between the total food obtained by the Brussels families and that moving into consumption in the United States, Canada, and the United Kingdom in 1943 (see *Food Consumption Levels*, 1944). The Brussels diet was particularly low in meat products, dairy products, and fats, whereas cereal products and potatoes formed an unusually high proportion of the diet. With such a combination of foodstuffs it was very difficult to prepare palatable meals. It should be pointed out, however, that even in normal times large quantities of potatoes are eaten in Belgium. As would be expected, a close correlation existed between the amount of a given foodstuff bought on the black market and its deficiency on the legal market.

TABLE II.—*Comparison of Amounts of Food obtained by the Families in Brussels in Jan., 1945, with that moving into Consumption in United States, Canada, and United Kingdom in 1943*

	Grammes per Head Daily			
	Brussels	U.S.A.	Canada	U.K.
Milk and milk products, excluding butter (expressed as milk solids)	31	80	79	61
Meats, including cured and canned and edible offal (carcass weight)	39	176	166	133
Poultry, game, and fish (edible weight)*	28	34	33	23
Eggs (fresh equivalent)	5·9	51	47	28
Oils and fats (fat content)	20	55	54	48
Sugars and syrups (sugar content)	54	104	98	81
Potatoes and sweet potatoes	598	193	255	318
Pulses and nuts (weight without shell)	0·51	24	14·5	6·9
Tomatoes and citrous fruits†	0	128	76	29
Other fruits and vegetables	288	202	184	310
Grain products	289	250	268	308
Beverages‡	9	18	13	15

* Only fish was obtained by the families studied in Brussels.
† No tomatoes or citrous fruits were available in Brussels during Jan., 1945. Tomatoes, however, are available in considerable quantity during the summer months.
‡ These include tea, coffee, and cocoa in the U.K., Canada, and U.S.A.; in Brussels only artificial coffee made from malt and chicory was available.

Table III shows the amounts of the various nutrients per head daily obtained by the families in Brussels from all sources; the total amounts are compared in Table IV with those moving into consumption in the United States, Canada, and the United Kingdom in 1943 (see *Food Consumption Levels*, 1944). In calculating the values for the Brussels families the Combined U.K./U.S.A./U.N.R.R.A. Working Party Food Tables for European Food Supplies (see *Nutrition and Relief Work*, (1945), with corrections kindly supplied by Dr. B. S. Platt, have been used. The nutritive values of the food moving into consumption in the United States, Canada, and the United Kingdom have been calculated from other food tables (see *Food Consumption Levels*, 1944). However, this difference is small and does not invalidate the comparisons.

TABLE IV.—*Comparison of the Nutritive Value of the Diet of the Families in Brussels in Jan., 1945, with that of the Population in the United States, Canada, and United Kingdom in 1943*

	Amounts per Head Daily										
	Kilo-calories	Protein	Animal Protein	Fat	Calcium	Iron	Vit. A	Vit. B_1	Riboflavin	Nicotinic Acid	Ascorbic Acid
		(g.)	(g.)	(g.)	(mg.)	(mg.)	(i.u.)	(mg.)	(mg.)	(mg.)	(mg.)
Brussels	2,100	66	19	43	572	17	6,200	1·8	1·3	13	167
U.S.	3,130	95	56	138	996	16	6,979	2·4	2·3	20	106
Canada	3,120	97	57	133	956	16	6,783	2·0	2·1	19	61
U.K.	2,827	87	40	113	1,054	16	5,000	2·1	2·1	19	127

An assessment of the nutritional adequacy of the Brussels diet can be made by "weighting" for the individuals of different age and sex comprising the 19 families. Table V gives the amount of each nutrient in the diet of the Brussels families expressed as a percentage of the amount they should have received on the basis of the National Research Council Recommended Dietary Allowances (quoted in *Food Consumption Levels*, 1944) and also on the basis of actual intake values found by Dr. R. A. McCance and Miss E. M. Widdowson

TABLE V.—*Nutritive Value of the Diet of the Families in Brussels expressed as Percentages of National Research Council Recommended Dietary Allowances and of McCance and Widdowson's "Found" Values*

	Percentage of N.R.C. Recommended Dietary Allowances	Percentage of McCance and Widdowson's "Found" Values
Kilocalories	82	87
Total protein	106	91
Animal protein	—	38
Fat	—	41
Calcium	61	75
Iron	144	119
Vitamin A	138	141
Vitamin B_1	126	204
Riboflavin	64	—
Nicotinic acid	94	—
Ascorbic acid	242	289

TABLE III.—*The Nutritive Value of the Diet of the Families in Brussels in January, 1945*

		Kilo-calories	Total Protein	Animal Protein	Fat	Calcium	Iron	Vit. A	Vit. B_1	Riboflavin	Nicotinic Acid	Ascorbic Acid
			(g.)	(g.)	(g.)	(mg.)	(mg.)	(i.u.)	(mg.)	(mg.)	(mg.)	(mg.)
Legitimate market purchases	Amounts per head daily	1,769	55·9	14·5	29	454·9	14·1	5,104	1·449	1·090	10·9	140
	% of total	84·3	84·4	77·2	67·9	79·6	84·0	82·3	81·4	85·1	82·0	83·1
Black market purchases	Amounts per head daily	234	6·3	3·3	12·7	76·7	1·2	370	0·176	0·147	0·8	0·6
	% of total	11·1	9·6	17·5	29·8	13·4	7·1	6·0	9·9	10·9	6·0	0·4
Works supplement	Amounts per head daily	97·0	4·0	1·0	1·0	40·3	1·5	726	0·155	0·108	1·6	26·4
	% of total	4·6	6·0	5·3	2·3	7·0	8·9	11·7	8·7	8·0	12·0	15·8
Total	Amounts per head daily	2,100	66·2	18·8	42·7	572	16·8	6,200	1·780	1·345	13·3	167

private communication) for British middle-class families in the few years before the war. It is apparent that the chief deficiencies are in calorific value, animal protein, fats, calcium, and riboflavin. It is noteworthy that except for riboflavin there is no obvious deficiency of vitamins. Although the Brussels diet is not deficient in total protein the proportion derived from animal sources (29%) is unusually low: this might affect the biological value of the total protein. Moreover, some 40% of the animal protein was derived from milk, which was allocated almost entirely to children, so that the adults must have received an even smaller amount of animal protein than would appear from the tables. Similarly, since 60% of the calcium in the diet was derived from milk, the adult intake of this mineral must have been strikingly low. The deficiency of riboflavin is brought about by the shortage of dairy products, meat, and eggs, which, for example, in the United Kingdom in 1943 supplied 60% of the total riboflavin of the diet (*Food Consumption Levels*, 1944).

No attempt has been made to assess the intake of vitamin D, but the diet obviously contained little of this nutrient. However, most children received supplements of calciferol from benevolent sources.

It should be stressed that the rationing system gave high priority to young children. In fact, their allowances were more than they could possibly have eaten (Bastenie *et al.*, 1944). Thus the food position of the families with young children was usually satisfactory, whereas families without children or with children of 12 to 18, whose requirements were high but for whom no extra rations were available, had much less adequate diets.

Comment should be made on the fact that apparently about 92% of the earnings of the families studied was spent on food. Five factors accounted for this. (1) Past savings were drawn upon with monotonous regularity. (2) When they had all been spent, debts were piled up. (3) As has been pointed out by Ellis (1945), rationed foodstuffs were bought and then sold on the black market to provide money for the purchase of other foods; great nutritional bargains were sometimes made in this way. (4) The coupons for rationed items which were not available were sold at a high price to people who lived in districts where these foodstuffs could be obtained. (5) Many took an active, though small, part in black-market activities; for example, they might go at the week-end to the country, purchase food from a farmer, and bring it back to town, there to sell the greater part at black-market prices.

Summary and Conclusions

By means of household budgets a dietary survey has been made on the families of 19 Brussels workers during Jan., 1945.

The amounts of meat products, dairy products, and fats available to the families in Brussels were low. This is strikingly apparent when comparison is made with the amounts of these foodstuffs available in the United States, Canada, and the United Kingdom during the war. Cereal products and potatoes formed an unusually high proportion of the diet in Brussels.

The nutritive value of the diet in Brussels has been compared with that of the diet in the United States, Canada, and the United Kingdom during 1943, with that of the diet in the United Kingdom before the war as found by McCance and Widdowson, and with the National Research Council Recommended Dietary Allowances. The comparison shows that the diet in Brussels was deficient in calorific value, calcium, riboflavin, animal protein, and fats. There was no obvious deficiency in other nutrients, but vitamin D may also have been inadequate in the diet of adults.

We wish to thank Air Marshal Sir H. E. Whittingham for enabling us to carry out this work and for his encouragement. We would also thank the Director of the Electro-Gaz works, Brussels, and the subjects and their families for their co-operation. We also record our gratitude to the social workers at the Electro-Gaz works, who gave us much assistance in obtaining the data.

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A CASE OF LOCAL TETANUS

BY

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The term "local tetanus" is used to denote those cases of infection by *Cl. tetani* in which muscular spasms and contractures are limited to one region of the body throughout the course of the disease. It is often extended to cases in which the tetanic manifestations are predominantly rather than exclusively local and to those with a prolonged local phase before a terminal generalization. Though referred to by earlier writers, the modern study of local tetanus started with a paper by Courtellemont in 1915. The diagnosis was made with increasing frequency, and by 1918 accounted for 19.2% of all cases of tetanus among casualties treated in the United Kingdom (*Official History of the War*, 1922). The most frequent form was the monoplegic, affecting an arm or a leg, but paraplegic, cephalic, and (rarely) abdomino-thoracic types were recorded. Splanchnic tetanus, so called because it follows a visceral infection, is "local" only inasmuch as the patient dies of asphyxia before generalization can occur.

The features of local tetanus were widely appreciated by the end of the last war, but all forms of the disease have become less common, and there is a risk that the rarer types may escape recognition for a longer period than is desirable in the interests of the patient. It is therefore thought justifiable to record a case, recently studied by Major A. G. Emslie, R.A.M.C., and me. The patient was seen four months after wounding and two months after the onset of what was taken to be a spastic paralysis of the right leg.

History of Case

The patient, a man aged 22, had received no tetanus toxoid or other prophylactic measure before he was wounded on Aug. 21, 1944. The injuries occurred in the chest, left shoulder, abdomen, and anterior aspect of the right thigh in its upper third. He was given 1,500 units of A.T.S within 12 hours. Débridement of all wounds was carried out within 24 hours, and he was then given 9,000 units of anti-gas-gangrene serum on account of the dirty condition of the wound in the thigh. He made a good recovery, and was discharged from hospital on Oct. 11, 51 days after injury. He remained fit for a further three weeks, after which he noticed a dull pain with stiffness in the region of the right hip. This gradually became worse, and he reported sick on Dec. 22. Until then he had been up and about, and throughout his illness he preferred to stay out of bed, as walking relieved the ache in his thigh. Examination on Dec. 29 revealed a cheerful healthy-looking man. Temperature and pulse were normal. All wounds were healed. The cranial nerves were normal. There was no trismus. Power, tone, sensation, and reflexes were normal in the arms and left leg. The right leg was held in an attitude of semiflexion at the hip and full extension at the knee. There was a slight increase of the lumbar lordosis. The lumbar muscles on the right were somewhat tense as compared with those on the left. The tensor fasciae latae, quadriceps, and adductors on the right were hard, tender, and could not be made to relax, but the hamstrings and muscles below the knee were normal. The right knee-jerk could not be elicited owing to the rigidity of the knee. The ankle-jerk was somewhat accentuated. The plantar responses were vigorously flexor. Sensation was normal throughout. The rigidity above the knee was such that the hip-joint seemed ankylosed. No spasms were seen. Radiographs showed a small metal foreign body lying to the inner side of the femur in its upper third. Blood count and sedimentation rate were normal.

A tentative diagnosis of local tetanus was made; this was supported by the observation that the contracture persisted in sleep and under pentothal anaesthesia—a fact which excluded the possibility of a hysterical condition. The consultant physician, Brig. Stevenson, considered the clinical indications definite enough to justify immediate treatment. The patient was given 40,000 units of A.T.S. intramuscularly daily for two days, followed by 100,000 units intravenously in saline on the third day. On the fourth day the wound in the thigh was explored and the foreign body removed. He received 80,000 units on the day of operation, followed by 40,000 units daily for three days. He thus had a total of 380,000 units of serum in 7 days. Despite the operative intervention no trismus or other evidence of generalization occurred.

Cultures taken from the foreign body gave a growth of *Cl. tetani* and *Cl. welchii*—an association often met with in tetanus. In order to control any remaining organisms left in the wound he was given a four-day course of penicillin, amounting in all to 400,000 units,

by intramuscular injection at three-hourly intervals. The contractures slowly declined, and tone was normal in the affected muscles 7 weeks after operation. He has remained well since then.

Comment

The long incubation period of two months is not unusual in local tetanus, though in many cases—notably in Bruce's 1918 series (*Official History of the War*, 1922)—it has obviously been an artifact due to the giving of repeated doses of antiserum at weekly intervals after wounding.

As a rule local tetanus arises in subjects who have had antiserum, but this is not always the case. Claude and Lhermitte (1915) have described a case in which no antiserum was given, and have further drawn attention to the existence of an attenuated form of generalized tetanus in which spasms do not occur, symptoms being confined to painful contractures which interfere but little with the patient's activities. Clearly the varying balance between the patient's passive immunity and the strength of the infection will provide a wide choice of clinical pictures.

This case illustrates the manner in which the toxin, ascending along peripheral nerves, involves a sharply demarcated zone of grey matter. The muscles involved were those supplied by the upper lumbar segments on one side only. If contracture was present in muscles above and below this level it was not clinically apparent.

As regards treatment, the large quantities of antiserum given were designed to prevent the generalization which has sometimes occurred after surgical intervention in this type of case. Penicillin was used to control any organism still left; but the happy outcome cannot be attributed to that drug, since many cases of local tetanus have been known to recover after removal of a foreign body and the use of serum alone. Nevertheless, it would seem to be a useful insurance in such cases.

My thanks are due to Lieut.-Col. P. A. Stewart, R.A.M.C., for permission to publish this case.

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Medical Memoranda

Congenital Recurrent Dislocation of Head of Radius

One feels that this case is worthy of report not only on account of the rarity of the condition but also because of the unique features presented in this particular instance. Twenty-two cases of congenital dislocation of the head of the radius, unaccompanied by other lesions, have been recorded, but in only one (Mauck and Butterworth, 1938) was the dislocation recurrent and completely reducible, and in that case the condition was bilateral, with reduction occurring in full extension.

CASE REPORT

On Jan. 16, 1945, a girl aged 9 was brought to the orthopaedic out-patient clinic of Durham County Hospital with the complaint that exactly one week previously, while attempting to loosen a button on the left shoulder with her right hand, she suddenly felt pain in the right elbow, and noticed that a "lump" appeared in front of the elbow, which disappeared on manipulation. The pain was momentary, and not severe. No history of any previous injury to the elbow was offered. Her birth was by Caesarean section at seven months' gestation, and the birth weight was only 4½ lb.

Examination showed that the patient was a well-developed, intelligent child. The left elbow was normal. Inspection of the right elbow revealed no swelling or bruising. Flexion, pronation, and supination were full. Very slight limitation of extension was present, and the tendon of the biceps with its aponeurosis was undulyprominent in the last few degrees of extension. When the patient extended the elbow past 90°, in supination, the head of the radius dislocated forwards, without pain. It could be reduced with ease by simple thumb pressure. Dislocation was not possible in pronation or in flexion beyond the right-angle.

Radiographs showed that the head of the radius was shallow and poorly formed. There were no additional zones of ossification about the elbow. The ulna had no tendency to anterior curve of the upper aspect of its anterior and posterior borders, as described by McFarland (1936). The radius was not longer than normal.

COMMENT

The absence of any history of trauma and the *x*-ray appearance of the head of the radius strongly suggested that the condition was of congenital origin. The complete absence of disability rendered any immediate radical treatment, such as orbicular ligament reconstruction, unjustifiable. Excision of the head of the radius was particularly contraindicated by the age of the child.

It was explained to the mother, however, that as the radius grew, dislocation for appreciable periods would permit of undue lengthening of the bone, with the probable result that dislocation would become permanent, and limitation of movement ensue. In that event excision of the head of the radius would be considered.

My thanks are due to Mr. A. H. G. Munro, hon. orthopaedic surgeon, Durham County Hospital, for permission to publish this case, and for his help and advice.

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Durham County Hospital.

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Operation for Recurrent Subluxation of the Temporo-mandibular Joint

In the *Journal* of Sept. 23, 1944 (p. 423), there appeared a letter on the subject of "clicking mandibles." This, and the reply given, prompt me to send the following case record.

An airman in the R.A.F. Regiment was first seen in Feb., 1944. He complained that when he opened his mouth there was a loud click on the right side. When eating, the click would often be associated with a sharp pain in the region of the right temporo-mandibular joint, severe enough to cause him frequently to abandon his meals. He gave a history of having been an amateur boxer, but he had never had his jaw dislocated or fractured.

In Jan., 1943, he had undergone a dental clearance, and had been fitted with dentures. Six months later he noticed the clicking of the jaw. On examination the click was obviously associated with a partial subluxation of the right temporo-mandibular joint. When he closed his mouth the subluxation was spontaneously reduced. A radiograph of the joint failed to show evidence of osteo-arthritis. He maintained that his condition caused him much disability, and he agreed to submit to operation even after the uncertainty of a cure and the relative certainty of a frontal paralysis had been explained to him.

At operation the right temporo-mandibular capsule was exposed through a curved incision. The capsule was found to be lax. A vertical incision was made in the capsule, and the cut edges were then overlapped and sutured so as to tighten it in an antero-posterior plane. Two sutures were also inserted to draw a very small "pleat" of capsule up to the root of the zygomatic process, and by this means tighten it in a vertical plane. The mandible was then "immobilized" in a jaw splint for seven days. Right frontal paralysis followed the operation. On removal of the jaw splint the patient was able to open his mouth, insert his dentures and eat without his jaw clicking, and without his old pain. He was seen again in June, 1944, when the right frontal paralysis had completely recovered. According to the patient's statement, recovery had occurred suddenly ten weeks after the operation. He could open his mouth widely without any recurrence of his symptoms, although there was still slight deviation of the point of the jaw to the left. The scar of the operation is inconspicuous.

He was last seen on March 3, 1945, and was then still symptom-free.

For permission to publish these case notes I am indebted to Sir Harold Whittingham, Director-General of Medical Services, Royal Air Force, and to Wing Cmdr. H. F. Harvey, officer commanding our Mobile Field Hospital. I wish to thank Air Cdre. Stanford Cade, Consultant in Surgery to the Royal Air Force, for much help and encouragement.

H. N. G. HUDSON, M.B., F.R.C.S.,
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Reviews

PREVENTIVE MEDICINE

Lectures on Preventive Medicine. By Harvey Sutton, M.D., D.P.H., F.R.A.C.P. (Pp. 658; illustrated. 27s. 6d.) Sydney: Consolidated Press Ltd., 168, Castlereagh Street. 1944.

After six years of war it is no easy matter to give a fresh account of preventive medicine for the student. We have lived so much on improvisation that there have been no real standards since 1938. Col. Harvey Sutton has given us a new start by publishing a series of lectures, based to a considerable extent on recent Australian figures. This work does not pretend to be a text-book, but there is a wide and interesting range of subjects and each one is fully treated. He is evidently specially interested in genetics and the problems of hereditary transmission of mental defect, as he devotes a racy chapter to the subject. The section dealing with maternal mortality is illustrated by recent Australian figures. Some of the conclusions indicate that the age of the mother is a more important factor in mortality than the order of birth; that the first birth is the safest, the mortality rising sharply after the sixth child. In other words, "the young primipara is by far the safest in child-bearing and the multipara over 35 most deserves attention." Sutton estimates that in 1940–1 there were 20,000 deliberate abortions (66 per 1,000) and 15,000 accidental (50 per 1,000). The total natal and neonatal losses were 56 per 1,000—less than half the wastage from abortion and miscarriage. Australia compares very favourably with the other nations in its infant mortality rate, with figures ranging from South Australia (33) to New South Wales (42). The best annual figures in recent years have been Adelaide (27.36) and Perth (27.96).

About half of the lectures are devoted to communicable diseases. Col. Sutton has been at great pains to bring his material up to date, and the section on vectors is well illustrated. The historical notes are often amusing, but the text is in parts little more than a catalogue. In dealing with the epidemiology of infantile paralysis his bewilderment and his honesty are both in evidence. After giving a list of the usual precautions against infection he turns in a kind of aposiopesis to exclaim: "It is curious how often children who have been most carefully kept away from contact with others seem, when the epidemic comes, the very ones to go down with the disease. The history of previous freedom from any infeotious disease is more frequent in cases than the community of children." Yet he is content to talk about carriers, and does not draw the inference which is implicit in his observation.

This is a vigorous book, well worth reading, and not seriously marred by wisecracks and quotations from political authors.

PLASTER-OF-PARIS IN SURGERY

Plaster of Paris Technic. By Edwin O. Geckeler, M.D. (Pp. 220; illustrated. $3.00, or 16s. 6d.) Baltimore: The Williams and Wilkins Company; London: Baillière, Tindall and Cox.

Is the skilful use of plaster-of-Paris in surgery an "art" or a "craft"? Dr. C. L. Scudder, in his foreword to this very valuable book, regards it as an art. This cannot be so, for the art of medicine must be bigger than technical procedures which are only a part of it. The art of any branch of medicine is to determine the nature of disease and apply its cure. There is craftsmanship in painting, sculpture, music, and poetry, but the techniques employed are not art. This is important, for to be an orthopaedist one must be more than a skilful user of plaster-of-Paris. In Britain several publishers of art books produce for the beginner works on "How to do it." Valuable as they are, the writers usually recognize that ultimately one cannot learn art, even artistic craftsmanship, from books. One must study the work of the masters and be taught practically by a master. So it is with plaster technique in surgery. Therefore it must be appreciated that the book under review is merely a guide, though a good one, for the beginner or practitioner who is forced to undertake work for which he has no practical training. The need for the latter should be stressed.

There are minor points to criticize—e.g., the uncertainty revealed as to whether the toes in leg casts should have plaster support beneath them and whether, generally speaking, the foot should be held at a right-angle. Too often in the illustrations the negative is portrayed while the positive view is stated in the text. Whilst improvisation, where necessary, should be described, the method here portrayed for fractures of the spine is bad and should not be fathered upon Watson-Jones. As this book can only be meant for beginners, unsafe measures should be avoided. At any rate in this country we would regard as such the use of transfixion pins for fractures of the femur and tibia. More emphasis should be placed upon the difficulties of swelling occurring within plaster splints—certainly one of the objectionable features the prevention and treatment of which should have much more space devoted to them. The medico-legal aspects of this complication ought to be touched upon, together with a description of the form of printed instructions which in this country is almost everywhere distributed to subjects who are being treated with plaster-of Paris as out-patients.

THE PATIENT IN HIS SETTING

Patients Have Families. By Henry B. Richardson, M.D., F.A.C.P. (Pp. 408. $3.00, or 16s. 6d.) New York: The Commonwealth Fund; London: Oxford University Press. 1945.

In the study of the patient the most conspicuous objective factor is the symptom, which is of course most important to the patient himself. To the doctor, we hope, the symptom is only part of the disease, and too often the study of the situation stops there; but the disease is part of the individual, the individual of the family, and the family of the social group. The doctor cannot fully appreciate the whole situation unless he studies all these factors. It is to be hoped that the new chairs of social medicine will soon familiarize the profession and the public with this truth.

Here is a book from America which describes work parallel with that of the Peckham Centre, and shows the enormous influence which interactions within the family group have in determining the health or ill-health of the various individual members. The effects of infection are obvious, and so perhaps are those of dietary and general habits of exercise and the like; but too little thought is usually given to the effects of suggestion, imitation, and identification in the production of psychosomatic manifestations. Other factors to be kept in mind are the general equilibrium of the family, and personal dominance (even of dead members) in the genesis of anxieties and other psychoneurotic manifestations. Such considerations are, or should be, familiar to the family doctor—the general practitioner in this country; hence his importance—but they are not to the vast majority of consultants and specialists, and Dr. Richardson is rightly concerned with this in America, where few family doctors exist. Is family doctoring to be a new specialism or an integrated team? Be this as it may, integration of team work is necessary, bringing in hospital physician, psychiatrist, social worker, and health visitor, and the author indicates how this may be brought about. He discusses the family as a subject of research, and adds in appendixes various techniques for carrying out such investigations.

This is an important book which deserves to be studied by all concerned with the new health services, for if we are to secure health and not merely fight disease we must get beyond our elaborate instruments, however useful, and our laboratories, however well equipped, to the setting and surroundings of our patient as a member of a family unit.

PSYCHOLOGICAL DEVELOPMENT OF THE CHILD

L'Évolution psychologique de l'Enfant. By Henri Wallon. Collection Armand Colin No. 232. (Pp. 223. No price given.) Paris: Librairie Armand Colin. 1941.

The way in which the mind of the child develops is of importance both for education and for psychology. Much study has been devoted to the subject in recent years and many different approaches have been used, all contributing to the sum of knowledge which is reviewed in this book. In the first part there is a comparison of the child with the adult. It is pointed out that the child's mind is quite different from that of the grown-up and so requires special methods for its study and an appreciation of the way in which it develops. The second part deals with the activities of the child and how they develop with special reference to play. The third part studies

more general applications, such as the emotional life, motor activities, the growth of knowledge, and the formation of the personality. All this is summed up in a brief sketch of the successive ages of childhood.

This is an interesting survey of child psychology which may be useful as an introduction to what is now an extensive literature.

Notes on Books

In 1941 we favourably reviewed the fourth edition of a *Textbook of Surgical Pathology*, by Prof. C. F. W. ILLINGWORTH and Mr. B. M. DICK. The fifth edition (J. and A. Churchill; 42s.), which has now appeared, incorporates some changes and additions to bring the matter up to date. In particular the articles on surgical shock and burns are new, and short descriptions are given of the crush syndrome, sarcoidosis, argentaffine tumours, and other conditions. The quality of the new matter is up to the general standard of the book. We see no reason to change the good impression which we previously expressed.

A Study of Endometriosis, Endosalpingiosis, Endocervicosis, and Peritoneo-ovarian Sclerosis, by Dr. JAMES ROBERT GOODALL, formerly professor of clinical gynaecology and obstetrics at McGill University, was warmly welcomed in these columns on Nov. 18, 1944. The original edition was exhausted in a few months, and J. B. Lippincott Company have now published a second (35s.). The only change of consequence is the addition of a new chapter on the urinary complications arising out of pelvic endometriosis, which vary from slight derangements of function to complete destruction of the organs of the tract.

The Wellcome Historical Medical Museum has arranged to publish shortly, in conjunction with the Oxford University Press, a book on *The Development of Inhalation Anaesthesia* from 1846 to 1900, by Dr. BARBARA M. DUNCUM, of the Nuffield Department of Anaesthetics, University of Oxford, and formerly on the staff of the Wellcome Historical Medical Museum. This will be the first of the Museum's post-war series of research studies in the history of medicine. It deals exhaustively with the history of inhalation anaesthesia in Britain, the United States of America, and on the European continent, from the scientific and clinical points of view. Features of the work are its investigation of the changes of opinion in regard to the physiological action of anaesthetics, the evolution and practical application of inhalers and other apparatus, and the introduction and adoption of anaesthetic drugs, during the period under review.

Dr. Rudolf A. Stern's *Trauma in Internal Diseases* was reviewed in the *Journal* of Aug. 18 (p. 220). We are informed by William Heinemann (Medical Books) Ltd. that an English issue of this book will appear under their imprint towards the end of the year at the price of 30s.

Preparations and Appliances

A CHEAP HOME-MADE SPECTROSCOPE

Dr. B. J. FREEDMAN sends the following description of an apparatus of low cost which can be readily set up in the laboratory, suitable for examining the absorption spectra of blood and other fluids:

Rationale

The spectrum is produced by a diffraction grating replica. This consists of a sheet of collodion 1.5×1 cm., which is a surface cast of a small sheet of glass, the original grating, on which about 14,400 parallel grooves to the inch are accurately and evenly ruled with a diamond. The replica, as sold by Adam Hilger Ltd. (Fig. 1), is surrounded by a black paper mask, and mounted between two sheets of glass 5×4 cm. for convenience in handling. If a ray of white light strikes a grating, most of the light passes straight through unaltered. A proportion on passing through is diffracted by the parallel lines, and deflected into two beams diverging on either side of the unaltered beam, the red rays being deflected more than the violet. If, therefore, a grating is held close up to one eye and a source of light is inspected through it a spectrum will be visible on either side of the light source. The grating produces a spectrum equally dispersed at all wave-lengths, unlike a prism or system of prisms, which compresses the spectrum towards the red end. The grating also causes greater dispersion, thus yielding greater resolution of wave-bands and hence wider separation of absorption bands. Any slight shift in position of absorption bands, as occurs on the conversion of oxyhaemoglobin to carboxyhaemoglobin, becomes correspondingly more apparent.

The slit is represented by the linear filament of a double-capped tubular lamp, of the type commonly used in shop windows and radiant-heat cradles. It is supported in the usual sockets, which are mounted one above the other on a board painted a dull black or covered with black cloth (Fig. 2). Alternatively the reflector in which this type of lamp is normally housed may be blackened and used instead. If the grating is now held up to one eye with the short sides of the mount vertical, and the incandescent filament is inspected through it, the spectrum will be seen on either side of the filament. If a sheet of coloured glass or an optical cell containing a clear coloured fluid is interposed between the grating and the lamp, absorption bands will appear in the spectrum (in the same manner as when using a prismatic spectroscope), corresponding to the wave-lengths that have been absorbed. A test-tube of about 1 in. diameter is in many ways better than an optical cell, and is of course incomparably cheaper. Such a test-tube when filled with fluid is a cylindrical convex lens, and, held parallel with the lamp filament (i.e., vertically) and a yard or two from it, causes a real image of the latter to be formed about 1 cm. outside the test-tube diametrically opposite the lamp. With a test-tube held at arm's length in the left hand, in a direct line between the lamp (which should be about 2 yards away) and the observer's eye, this real image will be seen as a bright line apparently running down the centre of the test-tube. This bright line will function as the spectroscopic slit, and will assume the tint of any coloured fluid placed in the test-tube. If now the grating is held close up to the eye with the right hand the spectrum with absorption bands will be clearly seen. A test-tube of smaller diameter is not recommended, as the image of the filament thereby becomes too narrow and lacking in brightness. As is the case with other types of spectroscope, the depth of colour must be optional; if too deep, neighbouring bands broaden and fuse, and the characteristic absorption spectrum of the fluid becomes unrecognizable. Using a test-tube of 1 in. diameter, three drops of blood in 3 in. of water gives a suitable concentration, in the absence of anaemia. Accuracy here is not necessary, and errors can be quickly corrected by adding a little water, or another drop of blood, accordingly.

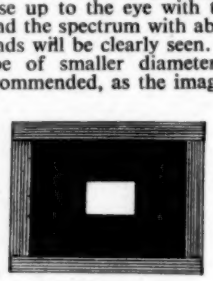

FIG. 1

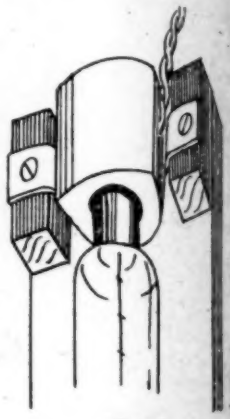

FIG. 2

FIG. 1.—Grating—replica in centre; black paper mask surrounding; edges bound with passe-partout. (One-quarter actual size.)
FIG. 2.—Showing brass strip holding socket to wood blocks. (One-quarter actual size.)

It is advisable to darken the room somewhat, or at least to see that no light objects are near the lamp, as these may obtrude themselves on the spectrum. The rationale has been gone into in some detail because readers may be unfamiliar with the diffraction grating.

Apparatus

1. Double-capped tubular lamp, obtainable from any electrician.
2. Pair of sockets for above, fixed to a black board as illustrated or in a blackened reflector. Sockets mounted on a metal rod and spaced the correct distance are obtainable from Linolite, Ltd. A few feet of twin flex and adaptor connected to the sockets.
3. Diffraction grating replica, obtainable from Messrs. Adam Hilger, 98, St. Pancras Way, London, N.W.1; price 4s. 3d.; catalogue No. K12.
4. Test-tube about 1 in. in diameter.

The total cost is a little over ten shillings.

Technique

1. The solution in suitable concentration is placed in a test-tube about 1 in. in diameter. If blood is being examined, about one drop per inch of water is the correct dilution. Cloudy fluids should first be cleared by centrifugation or filtration. The outer surface of the test-tube should be dry, because drops or smears of fluid impair its function as a lens.
2. Light the tubular lamp, which should be placed in a vertical position.
3. It is advisable, though not essential, to darken the room slightly.
4. Standing at a distance of about 2 yards from the lighted lamp, hold the grating, short side vertically, close up to one eye and observe the spectrum on one side of the lamp.
5. Holding the test-tube at arm's length in the other hand, parallel with the lamp filament (i.e., vertically) and on a level with it, move it across until it is interposed between the grating and the lamp.
6. The somewhat obtrusive direct (undiffracted) rays can be screened off by turning the head a little to one side, thereby interposing the black paper mask which surrounds the grating.

The procedure is simple, though this description may seem complicated to those unfamiliar with the diffraction grating. The advantages claimed for this apparatus over the usual pocket prismatic spectroscope are: (1) low cost; it is to be recommended where expense is a factor; (2) greater dispersion, yielding increased resolution of neighbouring absorption bands.

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WORK AT HIGH TEMPERATURES

To those concerned with the welfare of men and women who work at high temperatures, whether they be industrial workers or Service personnel, it is of no small importance that the limiting conditions under which work can be done should be known. There arises straight away the question how environmental warmth should be measured. Comfort and the body's reactions to its thermal environment depend on four distinct factors: the temperature, humidity, and rate of movement of the air, and the radiation from the surroundings. A perfect index of warmth would need to give due weight to each of these factors. It often happens in buildings, and generally in mines, that the temperature of the radiating surfaces is substantially that of the air, so that the reading of the dry-bulb thermometer indicates the radiation from the surroundings as well as the temperature of the air. Then, at comfortable temperatures, a tolerably good indication of warmth is given by the reading of the ordinary thermometer. In hotter environments, however, the humidity of the air is of increasing significance, for in the limiting condition the whole, or nearly the whole, of the heat produced by the body must be dissipated by the evaporation of sweat.

One index of warmth which is influenced by both the temperature of the air and its moisture content is the wet-bulb temperature. Forty years ago J. S. Haldane[1] concluded that the wet-bulb temperature is the limiting factor of the environment which determines the ability of man to retain his heat balance, and that a higher wet-bulb temperature can be tolerated if the air velocity is increased. Haldane gave the limiting wet-bulb temperature for resting men as 88° F. in still air and 93° F. when the air velocity was 170 feet per minute. Almost similar results were obtained for saturated air by McConnell, Houghten, and Yagloglou[2] twenty years later. Houghten and Yaglo-glou[3] had already developed the scale of effective temperature which is now in general use in the United States: this takes into account air temperature, humidity, and air velocity, but it gives greater weight to air temperature than is allowed for in the wet-bulb temperature. Pulse rate and rectal temperature were found to correspond closely with effective temperature. Haldane,[4] however, still maintained that wet-bulb temperature was the only thing that mattered.

During the war acclimatization to high temperatures has been extensively studied, and other investigations have been made of the upper limits of environmental heat which can be tolerated by acclimatized men. In his Croonian lectures, published in this *Journal* last month, Macdonald Critchley gave a most interesting account of the climatic problems of naval warfare. Eichna and his colleagues[5] studied acclimatized men who were nude except for shoes and socks and, sometimes, cotton shorts. The men spent eight to nine hours a day in the hot environment, five hours a day being spent in continuous marching. Dry-bulb temperatures ranged from 93° to 121° F., and wet-bulb temperatures from 90° to 96° F. The limiting factor was clearly the wet-bulb temperature, while the dry-bulb temperature exerted but a minor influence. At these high temperatures even a slight increase in the wet-bulb temperature is of importance. Only 4° to 5° F. of wet-bulb temperature separates environments in which work is comparatively easy from those in which it is impossible. Men work easily and efficiently at wet-bulb temperatures below 91° F. At wet-bulb temperatures of 91° to 94° F. prolonged and moderately hard work can be done, but it is done inefficiently and with difficulty, at the cost of loss of vigour and undesirable physiological changes, and with some risk of heat casualties. Above 94° F. wet-bulb temperature most men soon exhibit disturbing changes and can tolerate only about one hour of sustained, moderately hard work. Continuance of work for a longer time is at the cost of strong physiological disturbances, while the work is most inefficiently done. The limiting wet-bulb temperatures are only about 2° F. higher with dry-bulb temperatures below 100° F. than when the air temperature is 120° F. Very similar results have also been reported by Robinson and his team.[6] For men walking in shorts the upper limits at which thermal equilibrium could be maintained, with an air velocity of 180 feet per minute, were an air temperature of 93° F. and 91% relative humidity, or 122° F. and 21% humidity. These conditions respectively represent wet-bulb temperatures of 91° and 84° F., and the corresponding effective temperatures are approximately 89° and 92° F. Here again the effective temperature scale makes too much allowance for air temperature. From this work it seems clear that at the upper tolerable limit of warmth the wet-bulb temperature is the most significant factor, and that the effective temperature scale needs some revision. Another shortcoming of the scale is that it makes no specific allowance for radiant heat, so that when the mean radiant temperature differs much from the air temperature an erroneous impression of the warmth of the environment is given. This source of error is readily apparent when normal room conditions are considered; and that it is important also at high temperatures is clear from the observations of Houghten and his colleagues.[7]

In spite of its faults the effective temperature scale is a valuable aid to engineers who are mainly concerned with the central heating of buildings, but a scale of warmth is required which will allow adequately for each of the four thermal factors of the environment. For a restricted range covering the comfort zone such a scale of equivalent warmth was put forward by Bedford,[8] but there is a pressing need for scales which will cover the whole range of conditions from cold to great heat, and which will apply to persons who are resting or engaging in work of varying degrees of severity.

[1] *J. Hyg.*, Camb., 1905, **5**, 494.
[2] *Trans. Amer. Soc. heat. vent. Engrs.*, 1924, **30**, 167.
[3] Ibid., 1923, **29**, 165.
[4] *Trans. Instn. min. Engrs. Lond.*, 1929, **78**, 353.
[5] *J. industr. Hyg.*, 1945, **27**, 59.
[6] *Amer. J. Physiol.*, 1945, **143**, 21.
[7] *Heat., Pip., Air Condit.*, 1943, **15**, 205.
[8] Industr. Hlth. Res. Board, Rep. No. 76, 1936, London.

THE DECAYING VILLAGE

Life in a small village in England, whatever its outward attractions, means almost inevitably for many of the inhabitants a deprivation of some of the comforts and conveniences which a townsman takes for granted. In some villages the housing standard is deplorable. Below the thatched roof of the picturesque cottage and behind its too-small casements may be living conditions as bad as those to be found in the back streets and hidden courts of towns. Public services such as piped water, efficient sewerage, gas, and electricity are often not available, and social and recreational activities are difficult to maintain. This is amply illustrated in a survey undertaken by the Agricultural Economics Research Institute, Oxford,[1] of a little stretch of country in the South Midlands, 24 square miles in extent, comprising three large villages and twelve small ones, with a population of about 6,000 (having declined by 2,000 during half a century). The investigators—fifteen people, nearly all of them with university degrees—have explored the life of the rural labourer from his pre-natal clinic to his old-age pension. Such matters as the domestic budget, the methods of farming, the teaching in the (mostly old and ugly) schools, the attendance at church, the place of the "pub" in the life of the community, the health services and charities, the government of the village (very undemocratic as a rule) are all dissected expertly and sympathetically. These investigators have done in one small volume for a rural district what Charles Booth in seventeen volumes did for the life and labour of the people of London.

The area chosen is anonymous, and villages are identified by numbers. It is stated that no special significance attaches to the survey area, and any other country district would have done as well. From various clues it is possible to identify this strip of countryside. We were inquisitive enough to locate it because we sought an explanation of the almost entire absence of any reference to the rural medical practitioner. An enumeration of resident professional workers is given—8 clergy, 14 schoolmasters, 15 nurses, and so on—but not a doctor among them. We are told that the schoolmaster is the key man in social activities in the villages. The area is said to include four infant welfare centres, and two health visitors operate in it, but we are rather left to infer that the doctor must be sought in an outside market town. Actually the *Medical Directory*, 1945, gives the names of three doctors as living in one of the large villages, and two in another, not to speak of one or two on the retired list. Possibly the active doctors were away on war service when this survey was made. At the very end we are told that the area is reasonably provided with the services of doctors on the panel, but that only one is resident, others having surgeries in the villages. Apparently the method of calling the doctor depends upon the common knowledge that he will be visiting Mrs. Jones or Mrs. Smith round about a given hour, and a message can be left at her cottage asking him to call outside his prearranged round.

From an analysis of the weekly expenditure of 45 families it appears that the agricultural labourer spends just over half a crown a week on medical services and medical and hospital insurance, the professional worker just under three shillings, and the farmer a little over four—in each case about one-third of what they spend on drink and tobacco. On drink and tobacco the agricultural worker spends one penny in the shilling, and the industrial worker spends as much on these things as he does on the clothing of himself and his family. Hospital contributory schemes are very popular, and in the rural districts of the county (Oxfordshire) their membership reaches 80%. Even in remote parishes the hospital is a subject for local pride, though there is a feeling that townsfolk gain admission more readily owing to being near at hand. Complaints are also made of the congestion of out-patient departments and the long periods of waiting, which press severely on country people, who are controlled by the transport position. One reform would be a really good ambulance system for country areas. In the county of the survey nine authorities provide ambulances, some public and some voluntary, but they are entirely uncoordinated.

The larger lesson to be drawn from this survey is that the small village—of less than 1,000 or 1,200 inhabitants—as a self-contained community is doomed to decay. It cannot survive as a healthy organism. It cannot maintain the social services. Its children must go a long way to school. It can have only the occasional visits of a doctor. It must share a district nurse. It cannot afford the overhead cost of water supplies, sewerage, and electric light. Only nine out of these fifteen villages have piped water, and in two only of these are many houses connected to the mains, and only two of the villages have sewerage as well as water. In one of the larger villages the wells and springs were condemned some time ago, and here 1,200 people are dependent upon drinking-water which has to be carted from a distance, and run into galvanized cisterns placed in the streets. Every activity, economic and social, is less effective than it should be owing to the smallness of the community.

The countryman has, of course, the same right as the townsman to public services. He should not be penalized because he works in a rural area. The solution will be found partly in bringing more services under central administration, converting more private undertakings into public utilities, making water supply regional, and light and power national, with a flat rate for country and town. It is the view of the survey also that farms should be reassembled in better-planned units, re-equipped, and given adequate transport. The decentralization of urban industries will also have a marked effect on the countryside. Meanwhile better rural housing is an urgent need. Farm workers now living in isolated cottages, often insanitary, should be rehoused in good-sized villages or towns, with the bus passing the door. But preceding the new housing programme, urgent as it is, there should be public services of water, sewerage and electric light and power; and all new houses should be built on the assumption that those services will be available immediately if not already in existence. The survey makes clear, if it was not clear previously, that there is much to be done in planning and reconstruction before the life of the countryman, either on its material or its cultural side, is likely to approach the fullness of contentment and health

[1] *Country Planning. A Study of Rural Problems.* By the Agricultural Economics Research Institute, Oxford. (1945, Oxford University Press, London. 7s. 6d. net.)

STANDARDIZATION OF DIGITALIS

Since the active glycosides in digitalis leaves cannot be isolated and weighed, the potency of digitalis preparations can be maintained approximately uniform by biological methods only. The compilers of the *United States Pharmacopoeia* were the first to recognize this officially, and stipulated that a tincture should kill a frog within one hour when injected by a dose between certain limits. A check on the normality of the frogs was provided by requiring that a certain dose of crystalline strophanthin should also be lethal in the same length of time. This requirement remained effective in the United States for many years. A good deal of criticism was levelled against it, particularly by Hatcher at Cornell University, who introduced the cat method. Hatcher thought that in providing an estimate of the therapeutic value of digitalis the cat would be better than the frog, and for many years he and his clinical colleague, Dr. Cary Eggleston, urged the desirability of making a change in the official *U.S.P.* method, without success. In the meanwhile progress had been made in this country in the use of the frog. Trevan showed that there was a great variation among frogs. If, however, a given dose was injected into each of a large group of frogs the percentage which died was related to the dose. Thus there was a ratio, which was the same for any tincture of digitalis, between the amount that would kill 70% of frogs in a group and the amount that would kill 30%. Trevan's observations thus provided a method by which different batches of digitalis could be compared, and the introduction of an international standard of digitalis leaf provided material for making the comparison. As a result the frog method was indicated as the first method of choice in the *British Pharmacopoeia*, 1932, and has been used satisfactorily since that time.

In the U.S.A. things did not go so well. No provision was made for dealing with the variation in frogs, and the end-point of the test was at the end of one hour. Since digitalis injected under the skin of the frog must first be absorbed, the use of a period so brief as one hour has the effect that differences in the rate of absorption play a great part in determining the result of the test. A freshly made tincture is absorbed quickly, whereas one which is two years old is absorbed slowly. Examined at the end of two years a tincture appears by the *U.S.P.* test to have lost a great deal of its potency. In the United States the officials under the Food and Drug Act are active in examining digitalis preparations which are offered for sale; hence the manufacturer found it necessary to guard himself against the possibility that a tincture taken for analysis after a lengthy storage period would be found deficient in potency. Some manufacturers attempted to do this by issuing tinctures which were exceptionally strong when first put on the market, so that when analyses were made some tinctures were found to be no less than three times as potent as others. Three years ago Dr. C. W. Edmunds, who had strongly defended the frog method in the United States, died, and Dr. Eggleston became chairman of the Pharmacopoeia Convention. The result has been a change in the official method of standardizing digitalis. The frog method has been dropped, and the cat method introduced instead. This change does not affect this country, but it affects the Dominion of Canada. In Canada the *British Pharmacopoeia* has long been a statutory book of standards and has enjoyed a position which it has never enjoyed at home. Canada, however, wishes to sell tincture of digitalis which will satisfy the requirements of the *United States Pharmacopoeia*, and therefore has recently made a change in the official method of standardizing digitalis and strophanthus preparations to be in accord with the *U.S.P.* Six months after April 5, 1945, the cat method will be official in Canada. Details of the new procedure have been issued by the Laboratory of Hygiene, Department of National Health and Welfare, Ottawa.

The cat method is a satisfactory way of estimating digitalis potency, but it does not give a precise measure of the therapeutic value of the sample. No method of biological comparison does this. The doctor must still determine, for each patient, the dose which he requires, however accurately the tincture may have been standardized. This being so, it may be doubted whether the greater expenditure of time and material which the cat method demands is really justified. The difficulty presented in the frog method by differences in the rate of absorption can be avoided by allowing a much longer time for absorption to take place, as is the case in the official British method. This seems adequate to secure what is the main intention of standardization—namely, to ensure that the preparations of digitalis are of uniform potency on cardiac muscle so far as can be ascertained with due regard to economy of time and labour. Since the doctor must determine by trial the dose which the patient needs, it seems unreasonable to insist on a more expensive and elaborate procedure for the assay.

THE HEART IN INFLUENZA

The nature of the myocardial damage in influenza is not well understood, for, although the clinical evidence of this is abundant, recovery is usual and few records of pathological changes are available. Winternitz and his colleagues, in their classical monograph on the pathology of epidemic influenza, do not refer to the matter. The cases observed clinically have been found during convalescence from the disease rather than in its acute phase. It is, therefore, of unusual interest to read an account of two examples of acute myocarditis complicating influenza in both of which the A virus was isolated from the lungs.[1]

In the first case the patient, a woman of 34, suffered from a mild illness which was diagnosed as " bronchitis or 'flu," and some six or seven weeks later developed an acute illness characterized by pyrexia, leucocytosis, and signs of basal consolidation. A diagnosis of pneumonic was made and sulphadiazine therapy instituted. The condition, however, deteriorated, the signs of pneumonia consolidation extended, and death occurred. Post mortem, bilateral pleural effusions were present; microscopical examinations of the lungs showed no frank pneumonia, but congestion, mononuclear-cell and lymphocytic infiltration, some polymorphs and plasma cells, but no bacteria. The chief changes were found in the heart, in which there were widespread myocardial degenerative changes of an acute type, leading to necrosis and associated with mononuclear-cell and lymphocytic infiltration. The second case was that of a man of 39, who developed an acute respiratory infection and died from bronchopneumonia after an illness of six to seven days' duration. The bacteriological findings were not considered significant, but influenza virus A was isolated. In the heart there were areas of scarring and some recent necrosis of the muscle fibres; the lesions, however, in this fatal case were limited in extent and were discovered only after careful search.

The conclusion, which the authors themselves do not press, that these cardiac results are to be attributed to the influenza virus must be somewhat critically considered. The mere fact of the isolation of the virus from the lungs cannot be taken to be conclusive evidence, and it is pointed out that the lesions in the first case had the characteristics

[1] Finland, M., Parker, F., jun., Barnes, M. W., and Joliffe, A. S., *Amer. J. med Sci.*, 1945, **209**, 455.

of Fiedler's acute interstitial, or acute isolated, myocarditis —a rare condition of unknown aetiology. In the second case the fibrous lesions clearly appear to have antedated the acute respiratory infection, and the acute myocarditic changes were minimal. These observations should stimulate further interest in the search for evidence of myocardial lesions in association with influenza. At the same time the question of damage to tissues by sulphonamide drugs must be borne in mind. We are still incompletely informed as to the frequency and nature of the lesions which they may occasion, and this possible cause should be remembered where unexplained necroses occur as a complication of acute disease when these remedies are employed.

AN INTEGRATED HEALTH SERVICE

Major A. V. Franklin, R.A.V.C., has briefly described[1] how the Royal Army Veterinary Corps produced fresh and disease-free meat and milk for the armies of the Mediterranean theatres of war. Farms, livestock depots, dairies, abattoirs, and inspection services were established on the lines of supply. The work was undertaken at a critical period; it relieved pressure on shipping and home supply, and it grew into a large-scale experiment in military preventive medicine under many and varied environmental conditions. According to Lieut.-Col. H. Nelson, S.A.M.C., who was in charge of the hygiene services of the Union Defence Forces, the supply of fresh food benefited the health of the armies. He has been led by wartime experience to the conclusion that a civilian service, embracing such work as the R.A.V.C. performed, is necessary in order to combat the "very serious problem" of malnutrition and food-borne infection in his country. In an address before the South African Veterinary Medical Association[2] he proposed the appointment to the civil health departments of "veterinary officers of health," who should have charge of services concerned with the health control of food and should help in controlling the sources of infectious disease. In his opinion "the veterinary officer should become as much a member of the public health team as the medical officer of health." The theme of Lieut.-Col. Nelson's address was the oneness of the public health service.

In Great Britain the idea of integrating the medical and veterinary public health services was discussed by members of both professions more than a generation ago. It contributed to the movement which resulted in the formation of the Section of Comparative Medicine of the Royal Society of Medicine in 1923. As the *Proceedings* of the Section over the past 25 years have shown, a harmony of thought, training, and purpose unites the two professions, whereas the art and science of examination, diagnosis, and treatment of the patient are peculiar to each. Each is an authority in the application of distinctive clinical art and science to its patients. The problem is how the administrative advantages of concentrating the management of a health service in the person of one individual, who is usually a medical officer, can be harmonized with the need for making sectional work sufficiently bright in its prospects to attract other professional officers of high standing. It is an issue which may go far beyond the particular question of the veterinarian's place in public health as the public health services evolve.

We shall watch with interest how our colleagues in South Africa resolve the difficulties inherent in an integrated public health service. In Great Britain the tendency may be to leave things much as they have been: to accept the principle of collaboration between medical and veterinary officers, between Ministry of Health and Ministry of Agriculture, hoping, when a particular job has to be done, that somehow one or both will rise to the occasion, as the R.A.V.C. did in the Mediterranean theatres of war. In fact, the effect of the Agriculture Act, 1937, has been to diminish the position of veterinary inspectors in the sphere of local government, and to establish a separate veterinary service directly under central management.

[1] *Vet. Rec.*, 1944, **56**, 447.
[2] *J. S. Afr. vet. med. Ass.*, 1944, **15**, 125.

MEDICO-LEGAL APPLICATIONS OF BLOOD GROUPING

The discovery of the ABO system of blood groups was soon utilized in connexion with paternity cases and also for the typing of blood-stains. But the chance of exclusion of a wrongful accusation of paternity was not very great. Even with the subdivision of A into its two common subtypes the falsely accused man has, on the average, only one chance in six that he will be excluded by the determination of the blood group. Bloods or blood-stains are divisible into six kinds only—O, A_1, A_2, B, A_1B, A_2B. The establishment of the MN system constituted a notable medico-legal advance. In paternity cases it is of about equal value to the ABO system, so that the wrongfully accused man's chances improved to 1 in 3. There are three kinds of MN blood—M, N, and MN. Combining this threefold division with the sixfold division of the ABO system, human bloods could now be divided into 18 types. A new blood group, P_1, established by Landsteiner and Levine,[1] and more recently reported on by Wiener and Sonn,[2] seems to be clear-cut enough in its inheritance, P+ being dominant to P−. Its value in paternity cases, however, is negligible, for it would exclude only one wrongly accused person in every 100. For subdividing bloods, on the other hand, it is useful; with its help the 18 kinds of blood are increased to 36.

In the short-lived days of its pristine simplicity, when Rh+ and Rh− alone were distinguished, the medico-legal contribution of the Rh system was no greater than that of P. All that is now greatly changed. If Fisher's[3] hypothesis of triple allelomorphs is established, as seems likely,[4] there will exist no fewer than 27 serologically distinguishable kinds of Rh, though some of them are rare. Wiener and Sonn in the paper quoted above discuss the medico-legal implications of Rh, confining themselves to the eight Rh types upon which there has been general agreement for some time. They point out that the chances of the wrongfully accused man have now improved to nearly 1 in 2, while the distinguishable kinds of blood are $36 \times 8 = 288$. In this last connexion, however, it must be pointed out that there is a serious limitation; Rh reactions are delicate and are applicable only to fresh, wet blood-stains.

The Rh system will make a further contribution, and there is every likelihood that new blood-group systems will be established in the near future. In a recent paper in the *Journal* Callender, Race, and Paykoç[5] described no fewer than three new antibodies, demonstrated during the course of repeated transfusions to an apparently hypersensitive patient. One of these is a Mendelian dominant, displayed by 8 to 9% of the English population. Truly, serology is making rapid strides towards justifying the opinion of Landsteiner that some day blood groups would be known to be as individual as finger-prints.

[1] *J. Immunol.*, 1931, **20**, 179.
[2] *J. Lab. clin. Med.*, 1945, **30**, 395.
[3] Race, *Nature*, 1944, **153**, 771.
[4] Mourant and Race, ibid., 1945, **155**, 542.
[5] *British Medical Journal*, 1945, **2**, 83.

SOME EXPERIENCES OF A MEDICAL PRISONER OF WAR

BY

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Between Sept. 19, 1939, and May 19, 1945, I was a Polish prisoner of war in Germany and was employed as a surgeon in prisoner-of-war camps and hospitals. These six years have afforded me unique opportunities for studying the life of prisoners of war of almost every nationality, and of making medical observations.

I became a prisoner of war when surgeon-in-chief of the Polish Naval Hospital in Gdynia. After the closing down of this hospital I was sent to labour camps in Poland, in Pomerania, and thence to the fortress of Torun, where at first only Poles were kept, but since May, 1940, also British prisoners from Dunkirk and Norway. From the fortress of Torun I was transferred to the prisoner-of-war section of the German hospital in the same town, and after three months, with the sick men under my care, back to the fortress. In 1941 I was sent to an oflag in Prenzlau, and after three weeks to the Inter-Allied P.o.W. hospital in Neu-Brandenburg, where I worked for four years as surgeon-in-chief.

The diseases prevailing among prisoners of war were more or less directly the result of the conditions in which they lived. In most cases the front-line soldier was taken prisoner in the heat of battle, at a moment when he was applying himself to a very hard task. The very fact of becoming a prisoner, in most cases unexpectedly, caused a severe psychological shock. This blow to soldierly ambition, the feeling that their personal career was interrupted, and in many cases the realization of the national collapse, induced many prisoners to commit suicide. Such cases were particularly numerous among Polish officers and soldiers after the campaign of 1939.

With his capture two new factors appeared in the prisoner's life. These were psychological and physical humiliations. The Germans tried to humiliate their captives by constantly stressing their individual and racial inferiority. On the whole, these attempts failed to break down morale, and often gave rise to a spirit of rebellion. Prisoners were forced to salute the Germans, their good uniforms were exchanged for prison rags, their equalettes and other badges were brutally torn off, they were forced to do the most hideous sanitation jobs, they were forbidden to enter public places or to walk on the pavements, they had to listen to dirty abuse of their superiors and national leaders. They suffered, too, from hunger, cold, the absence of elementary hygienic amenities and sanitation, and exhausting physical labour. All this affected the men most severely in the first few days of their capture.

I remember the arrival at Torun of the first British prisoners of war from Dunkirk. For six days they had been travelling in sealed cattle-trucks. The heat, thirst, and starvation were such that only a few of them could leave their wagons unaided on arrival. Many of them were so exhausted that they had to be detained in P.o.W. hospitals. The beginning of the period of internment for the Russian prisoners was even worse. I estimate that about 80% of the total number of Russian prisoners of war taken in 1942 and 1943 died from hunger and cold. The majority died in German-occupied Poland in special camps in which they lived without huts, tents, or blankets, in holes which they had dug for themselves in the fields during the severe winter.

Incidence of Diseases

Such conditions tended to develop diseases of the lungs and of the alimentary canal, and fevers. Individual and racial predispositions tended to foster the development of particular diseases.

Typhus.—Of epidemics the most serious and dangerous was typhus. In 1939 there were only sporadic cases. In 1942 and 1943 epidemics of this disease spread throughout the P.o.W. camps in Poland and Eastern Germany, in connexion with which I made one particularly interesting observation. Though the number of cases was largest among the Russians, their death rate was lower than that of other nationalities. I estimated the death rate from typhus among the Russians in our camp at 10 to 30% in spite of severe underfeeding, which in many cases was the true cause of death. Resistance to typhus was lower among the nationals of countries lying further west: thus at a hospital at Hammerstein out of 20 cases among the German hospital personnel there were 20 deaths. In the Russian prisoner-of-war camp at Hammerstein the German authorities, noticing the high death rate among German personnel who were looking after sick Russians, ordered the speediest possible disposal of the source of infection. Of course, this source was the Russians, of whom about 2,000 were at that time ill with typhus or were under observation. Within three days the German camp commander reported that there were no Russians ill with typhus at Hammerstein. This was quite true. During those three days all the sick Russians had been murdered.

Tuberculosis of the lungs caused many deaths, particularly among the Russians, Serbs, Italians, Poles, and French. Serbs and Frenchmen were especially predisposed to tuberculosis of the bones (mostly Pott's disease). Underfeeding, colds, and hard physical labour made any prospect of improvement or cure out of the question. Treatment was limited to isolation. However, as the camps were overcrowded, isolation was in practice impossible; for in 1944, in the Neu-Brandenburg camp, out of a total number of 6,000 prisoners, 2,000 had open tuberculosis of the lungs, and their number was constantly growing.

Of *diseases of the alimentary canal* there were two big epidemics—typhoid fever, dysentery, and pseudo-dysentery in 1942 and 1944–5—which ravaged the Polish, English, American, and Russians. These resulted in a high death rate, mostly due to complications in the circulatory system. Nightmarish conditions prevailed owing to overcrowding and the lack of sanitation. The sight of so many emaciated patients lying in their excrements, on a floor covered only with a thin layer of straw, was indescribably painful. In the winter of 1944–5 about 1,000 of them arrived at our hospital. They belonged to every allied nation, including many British and Americans. They had been driven for hundreds of miles, from East Prussia and Poland to Western Germany, mostly on foot. They were forced to march while starving and sick, in bitter cold weather and snow. They had to tramp on because those who lagged behind were mercilessly killed by their German guards. I have no words to describe the misery of those poor wretches, who were supposed to be protected by the humanitarian regulations of the Geneva Convention.

All these diseases—i.e., typhus, tuberculosis, and diseases of the alimentary canal—were particularly important, because of the numbers affected. Other diseases hardly differed from cases to be found in hospitals in peacetime.

Diseases due to Prison Life

I should like here to dwell a while on diseases closely connected with the conditions of life of the prisoners, and therefore comparatively rare under normal peace conditions. These are: mental diseases; frostbite; wound gangrene; diphtheria; endarteritis obliterans; severe stomach troubles.

Mental Diseases.—On the whole, the period of captivity only facilitated the development of such diseases in those already predisposed towards them. Most numerous were schizophrenia and manic depression. The weakening of the resistance of the nervous system which found its expression in abnormally strong reactions and in an inclination towards both excitement and depression could be observed among the majority of prisoners. Actual damage to their will-power or mental efficiency cannot be defined by the doctors who were themselves prisoners, but must be done by psychiatrists.

Frostbite.—In this war cases of frostbite have been particularly numerous. Some of these cases I succeeded in getting the Swiss medical press to publish in 1944. These included a case of bilateral paralysis of the radial nerve in a man who suffered only from frost gangrene of his lower extremities. Altogether, I described 37 cases of frostbite (with photographs), most of which arrived in a very advanced state of gangrene of the extremities. This led in many cases to complete or partial loss of the feet. I should like to stress here that all these cases developed, not during the actual fighting or on the battlefield, but after capture, owing to camp conditions.

The infection of small wounds on extremities oedematous from starvation caused the appearance of a rare phenomenon—*gangrene* of the skin and of the subcutaneous tissue. Such cases, resulting from putrid infection, could be observed among Soviet prisoners of war in 1942. Radical removal of the necrosed parts, together with skin-grafting, gave satisfactory results. One day late in 1942 we received 27 patients, all of whom showed symptoms of this form of gangrene; and all of them were Russians.

Diphtheria.—Our experience of diphtheria epidemics should be of particular value to British colleagues. On the Continent we used to regard this disease as peculiar to children, and we were very much struck by the fact that an epidemic spread among British prisoners of war in 1940. In that year we had about 400 cases under treatment in Torun alone. Between 5 and 15 cases were constantly to be found in the Neu-Brandenburg hospital during the last four years. Among complications were disorders of the peripheral nervous system, but deaths were few and far between.

We had special difficulties with the treatment of *endarteritis obliterans*. These cases usually arrived in hospital in an advanced stage of Buerger's disease. In one week 8 patients suffering from this condition had to be operated upon. In the early stages sympathectomy and intensive " priscol " therapy, as well as hormones (obtained from Switzerland), seemed to give satisfactory results, yet in many cases progressive necrosis forced us to amputate the affected extremities.

Severe Acute Dilatation of the Stomach.—This was another disease fairly common among the prisoners of war though rare in peacetime. It was usually caused by the intake of even a *small* quantity of food after a period of *prolonged starvation*. I have personally met with such cases only among Italian and Russian prisoners of war.

Medical Care

The organization of medical services was as follows: the personnel was recruited from medical men of all nationalities who were prisoners of war. They had at their disposal sick-rooms in the P.o.W. camps, and also special hospitals for prisoners. The head of the medical personnel was always a German, both in the camps and in the hospitals. He controlled the prisoner-doctors, but concerned himself less with treatment proper than with seeing that the prisoners were kept as short a time as possible under treatment, so that valuable man-power should not be lost to the Reich. Medical supplies, adequate at first, decreased as the war went on until they were reduced to a ridiculously small amount, and towards the end of the war we hardly got anything at all. Of special medicines, some, such as sulphonamides, were given out to prisoners, but others, like penicillin or hormones, were outside their reach. The sick-rooms in the camps were, on the whole, very poorly equipped, were overcrowded, and hardly differed at all from the ordinary prisoners' huts. Bunks in place of beds, straw in small quantities instead of mattresses, and the lack of sanitation and of running water should give an idea of how bad the conditions were. The personnel consisted mainly of untrained prisoners—male nurses, whose number was strictly kept down. Hospitals were on the whole better equipped, but as time wore on they also got worse.

Medical supplies provided by the International Red Cross improved the position, though the shortage was felt right up to the end. The patients' food hardly differed from the ordinary fare of the prisoners, and the amount of calories was much lower than what was needed. Here again the Red Cross parcels were a great help. I think that if it had not been for these parcels some 70% of the prisoners would have died from starvation. In addition to the main disease, we always had to treat complications resulting from underfeeding and cachexia.

Sights Seen in a Russian P.o.W. Camp

I happened to be in the Neu-Brandenburg camp when dinner was served. This was composed of a watery vegetable soup doled out once a day in meagre quantities. It was winter. I saw a long line of terribly emaciated Russian prisoners in rags. Their feet, blue with cold, were sometimes bare, and sometimes they wore wooden clogs. They held their mess-tins in trembling hands, numb with cold. But it was their eyes that drew my attention. They had nothing human in them; they were deeply set, shining, and fixed with an animal expression on the soup-container. They seemed to see nothing except it; they seemed not to notice that some of their comrades had fallen from exhaustion and that they were treading upon them, doing them to death by the trampling of their clogs. Their only idea was to get nearer to the soup-container and obtain their ration quickly. After this scanty fare several prisoners who had not had enough strength to wait for their turn were carried to the camp cemetery.

I have seen bodies with pieces of flesh hacked out. The flesh was cut away by starving comrades after death, sometimes even before. Yes, this was the cannibalism which the Germans denounced as a proof of the bestiality of the prisoners. It was a proof of bestiality, but of the bestiality of the Germans, who sadistically satisfied their lowest, cruellest instincts. These acts of cannibalism took place in the very heart of Germany, where, right up to the end of the war, well-fed fat Prussian peasants forced emaciated and starving prisoners to perform the hardest tasks.

The Life of P.o.W. Doctors

Though the Geneva Convention guarantees special privileges for doctors, the only practical difference was that we could, and had to, work. We had the same food rations and the same lodgings as other officers. We were entitled to two hours' walk three times a week, but of course under the guard of a German soldier. This walk was a privilege only for doctors, but doctors working in Polish oflags were not getting it. The crowds of patients, the difficulties of securing clinical and laboratory aid, the lack of assistants and specialists—all compelled us to work exceptionally hard. Yet among the Germans we found no understanding whatsoever of our problems.

In 1940 I was sent to the prisoners' section of the German hospital in Torun. It was housed partly in the hospital chapel and partly in old wooden barracks. Infectious patients, medical and surgical cases, were all herded together. In February of that year some new cases had arrived and I discovered typhus among them. The Germans at once sealed off the whole section with barbed wire and forbade all contact with the outside world under penalty of death, while I, who was in charge of all patients, including non-contagious cases, was locked up with them in one large overcrowded room. I remonstrated that in these conditions the non-infectious patients would get contaminated, but my protest was of no avail. I spent five weeks in that room among patients with high fever, many of whom died. In April of that year we were removed to Fort 14 in Torun. This fort was partly underground; it had thick damp walls, no water, and no heating. It was suitable for storing ammunition, but not for a hospital. On the first day of our work there the dampness was such that the constantly wet bed-linen dried only from the heat of our patients' bodies.

In this hospital I was given an assistant, a young English doctor, who had to work very hard and for whom I tried in vain to obtain a change of linen. At the time when help from the Red Cross was not yet in full swing we obtained much aid from the local Polish population, though the penalty for any assistance given to prisoners of war, even for such small things as the gift of a roll or article of clothing, was death; these Polish people saved many prisoners from starvation. Doctors took upon themselves the role of middle-men in supplying food. Of course, for us Poles the discovery of such activities meant death or, at least, the removal to a concentration camp.

In the Neu-Brandenburg Inter-Allied Hospital I worked not only as a surgeon but also as a radiologist. The large number of patients, including many cases of tuberculosis, necessitated frequent *x*-ray screenings. We had only one *x*-ray apparatus for about 50,000 prisoners. It was of French make, a fairly powerful unit but a fairly old model. It was set up in an old barracks with no protection of the walls, and the only cover for the doctor was a ragged apron thrown away by another hospital. When I asked for the necessary precautions against the effect of *x* rays I was told that there was a great scarcity of rubber and that German hospitals had priority. I had therefore either to work without any safety measures or to deprive my patients of *x*-ray examinations. For two years I worked without any safety devices whatever.

Another difficult problem was blood transfusion. To take blood from other prisoners, overworked and exhausted, was not practicable. Many times my colleagues and I had to give our own blood immediately after an operation to save a man's life. We did not get any stored blood whatsoever from the Germans. In this connexion I remember a Russian prisoner of war who was brought to me with an open fracture of the leg. The blood vessels were torn and he had bled a great deal. Before beginning the operation I asked the German doctors for blood for a transfusion. Their reply was that they needed the blood for German front-line soldiers, and that the patient was anyway likely to die. I said that the patient would live if the necessary precautions were taken. To show how strongly I felt about it all I arranged a somewhat theatrical scene. I performed the operation in the presence of German doctors and S.S. men, and when I had finished I asked my assistant to take about 500 c.cm. of my blood (my group happens to be O). The patient was saved, and the Germans left the operating-room without saying a word. However, later on they began to offer us some help.

In 1942, when epidemics of typhus broke out in the Russian P.o.W. camps, only Polish doctors were sent to look after them. Almost all contracted typhus, and many died, including my friends Major Dr. Borkowski, Capt. Dr. Wierzbowski, and others. In that year some 30 Russian prisoners arrived in hospital with gangrene of the lower extremities. I was asked to operate on them and to send them back to their camp, where thousands of even healthy prisoners died from cold and starvation. I refused to send them back, saying that they were human beings and must be treated as such. At this time anti-Bolshevik propaganda was at its height in Germany and found expression in studied cruelty towards Russian prisoners. Although threatened with the firing-squad, I refused to change my mind, and the affair went before the highest German military authorities, who finally agreed to leave these Russians in hospital. Owing to the firm attitude we had adopted the only place in the whole of Germany where Russian prisoners of war were treated in the same way as other prisoners was the surgical side of our hospital.

These facts show the difficulties which the doctor must be prepared to face while carrying out his own profession. But the work of a prisoners' M.O. is not confined to his professional duties. In a stalag or in a hospital the doctor is the highest ranking officer and the chief. He is the trustee and adviser of his patients in all their personal, family, and national affairs. Thus the doctor has first to heal his patients, and, secondly, as their guardian to settle the many affairs that come under

his notice. Of course, the Germans took every conceivable step to make it possible for the doctors to act in the latter capacity, and actually many of the latter paid with their lives for what they did in this respect. Among my closest friends and colleagues, Dr. Zenkteller, Dr. Dudo, and many others suffered death for their work.

However, the results obtained were, in spite of all, simply magnificent. Thus, for instance, in the Inter-Allied Neu-Brandenburg Hospital, with 40,000 patients and 5,000 surgical operations in five years, the ratio of cases cured was not lower than in peacetime hospitals. Some of the recoveries of particularly grave cases, such as abdominal gunshot wounds, intestinal obstructions, operations on lungs, bladder, etc., caused not only our own amazement, but also that of German professors who from time to time visited our hospitals.

Conclusions

I should like once more to stress two points. First, the importance of our observations with regard to diseases peculiar to prisoners, particularly diphtheria, frostbite, and stomach troubles connected with starvation. While a prisoner of war I could not follow closely the international medical literature: probably experience had enlarged our knowledge of these diseases during that time. All the same, I thought it my duty to record my observations. The second point I want to stress is that such results as were achieved by us were largely due to the morale of the doctors concerned. Strength of character, professional knowledge, and stout hearts fought victoriously against cruelty and brutality. Many of my colleagues perished during the struggle, whether shot on the spot or murdered in concentration camps. Their deaths were a loud protest against war, murder, and racial and national hatred. They were uncompromising in the help they brought to the sick and wounded of every race and every nationality. And they did not hesitate to offer their lives for their ideals.

CENTRAL TUBERCULOSIS SCHEME FOR NORTHERN IRELAND

The Northern Ireland Branch Council of the British Medical Association has published a report on the need for better facilities for the prevention, diagnosis, and treatment of tuberculosis. At present Northern Ireland suffers from a lack of proper diagnostic facilities in some areas, a universal shortage of hospital and sanatorium beds, and the absence of a plan for the training and rehabilitation of the tuberculous. It is pointed out that in England there are unified schemes for the West Riding of Yorkshire and for Lancashire, as well as a scheme for Wales, and all these areas have populations larger than that of Northern Ireland, which was estimated at 1,295,000 in 1939. Northern Ireland has an annual tuberculosis death rate of 840 per million, which is below that of Wales (958), but well above that of Lancashire and the West Riding (560 and 570 respectively), and Northern Ireland is much less favourably situated than any of these areas in its proportion of beds to the prevalence of the disease, taking as the criterion of prevalence the number of deaths. While in Lancashire the percentage of beds to annual deaths is 90, in Northern Ireland it is only 56. Long waiting lists are therefore the rule at the five hospitals and sanatoria which Northern Ireland at present possesses.

The Joint Tuberculosis Council has recommended that as an absolute minimum there should be a ratio of three beds in tuberculosis institutions for two tuberculosis deaths per annum in any area. In view of the advent of mass radiography and treatment allowances this ratio may prove barely sufficient, but on this basis 1,500 beds would be required in Northern Ireland, where there are only 614 at present. The Branch Council proposes as a minimum two additional institutions. One of these would be a large modern sanatorium to be erected near Belfast (but not less than 10 miles away from the city centre). Smaller but well-equipped institutions might be built elsewhere. Whiteabbey Sanatorium, with certain structural alterations and additions, would be suitable for use as a chest hospital for Belfast and district, though not for convalescent sanatorium patients. These institutions, together with Forster Green Hospital, should go far to provide sufficient beds for all cases of pulmonary tuberculosis. Provision might be made for orthopaedic cases in conjunction with the orthopaedic scheme for Northern Ireland, or, failing this, the temporary children's hospital at Greenisland might be constructed to provide 80 to 100 beds for tuberculous children requiring orthopaedic treatment. The idea of training colonies might be developed in co-operation with the Ministry of Labour.

It is stated that the existing arrangements for notification in Northern Ireland are unsatisfactory. Medical practitioners are required to notify only tuberculous persons who are infective—that is to say, when they have reached a stage at which their chances of cure or recovery are relatively poor, when they are capable of transmitting infection to others, and when long periods of institutional treatment are necessary. It is the view of the compilers of the report that all forms of tuberculosis at any stage of the disease should be compulsorily notifiable.

Other proposals are for a larger number of tuberculosis dispensaries (the name of which should be changed to "chest clinics"), situated where possible in voluntary or county or district hospitals, and the provision of night hostels for tuberculous men and women who are homeless or lack suitable accommodation in their homes. Belfast, it is said, could with advantage provide lodging-houses for such people, with well-ventilated rooms, a verandah, and garden.

The Branch Council also calls for the efficient pasteurization of all milk supplies for human consumption as a means of preventing tuberculosis of bovine origin. About 40% of the cattle slaughtered in abattoirs in Northern Ireland are found to have naked-eye lesions of tuberculosis, and about 6% of samples of unheated milk taken from supplies delivered to households in Belfast are infected with virulent tubercle bacilli. Certain proposals are made for research, education, and after-care. Stress is laid on the need for the systematic instruction of all nurses for the certificate of the Tuberculosis Association. The teaching of tuberculosis to medical students is considered inadequate. The Branch Council recommends that they should be given a regular course of instruction in tuberculosis work, and that more facilities for postgraduate study should be available.

MEDICAL RESEARCH IN EIRE

The Medical Research Council of Ireland in its annual report gives an account of many useful investigations. The goitre problem in County Tipperary has continued to receive attention, and an analysis of the findings of a three-years experiment on the treatment of goitre in school-children by means of iodine has been completed. The indications show that the iodine has had a positive effect in arresting the development of puberal goitre. A dietary survey with special reference to the intake of iodine has been made in Tipperary, with control areas in Galway and Leix. From this work it has been shown that the iodine intake of children in Tipperary ranges from 4 to 35 gamma a day, and that families using home-made (in preference to baker's) bread have, on the whole, the higher intakes. The administration of iodine to children of school and pre-school age and to pregnant women in a number of areas has been continued, but results from this work cannot be expected for some years.

Supplies of Penicillin

The Council has been made the controlling body for the distribution of supplies of penicillin in Ireland. The arrangements are being made by two committees—one for the south of Ireland under the chairmanship of Prof. J. M. O'Donovan and the other for the west under the chairmanship of Prof. J. F. Donegan. The first consignment of penicillin arrived in Ireland in August, 1944, and from that time up to the end of the year 222 cases were treated. Arrangements have been made with the Irish Drug Association for its members to take over the storage of penicillin and its distribution to teaching hospitals in Dublin, Cork, and Galway. The work of the committees will continue until the drug becomes available through the ordinary commercial channels.

Dietary Standards

The Minister for Local Government and Public Health has asked the Council's co-operation in connexion with a proposal to establish dietary standards suitable to the Irish population, both rural and urban. Certain suggestions have been made to the Minister, and it is hoped that the proposed scheme will be working during the present year. An investigation into the typhoid carrier condition, again at the request of the Minister, has been started. Under a special grant

from the Eire Parliament two workers have been appointed to carry out an investigation into the chemotherapy of tuberculosis. The question of the incidence of rickets in Dublin has also been investigated, and nearly 400 cases taken at random from out-patient departments have been examined clinically. The maximum incidence was found in the age group under 1 year, whereas in a similar investigation in the spring of 1943 the maximum came in the group 1½–2 years. There was no evidence of any appreciable improvement in the intake of milk and vitamin D. A high plasma phosphatase was taken as justification for classifying the case as one of rickets.

The Council expended during the year £7,900 on grants.

Correspondence

Neurologist and Neurosurgeon

SIR,—In your sympathetic editorial (*Journal*, Sept. 1, p. 292) upon the report of the Royal College of Physicians' Neurological Committee you observe that the report has not attempted to grasp the nettle of the future relationships of neurology to neurosurgery. It is true that it does not make any proposals in this regard, and it is true also that some will have to be made and agreed if a soundly integrated body of neurological medicine is to emerge in the future.

The problem that confronts us is that of harmonizing the roles of physician and surgeon in the field of neurology, and a clue to its rational solution is given in your remark that the neurologist is "a judge who sums up and advises as to the nature, origins, outcome of an illness, and the disposal of a sick person, and *he is not the purveyor of a particular line of treatment*." (Italics ours.)

If we are to take this view of the neurologist's functions—and it is impossible to suppose that any less comprehensive view is practicable—certain consequences follow of necessity. The neurologist must be so trained that he is competent to act over the whole field of neurological illness, and, what is not less essential, over the entire range of clinical material that may be referred to him—even though erroneously—as neurological. For no neurologist of experience will dispute that an appreciable proportion of the cases that come under his observation are not neurological in nature, but include many and diverse illnesses, somatic and psychological. He has therefore to be vigilant and reasonably competent over the whole field of medicine if he is to be expert within his own. He has diagnostically to handle neurology and whatever his colleagues may believe to be neurological, whether in fact it is so or not.

If this be a fair and reasonable statement of his position, it is clear that to exclude from his purview all clinical neurological material which investigation may ultimately show to call for surgical intervention is arbitrarily to mutilate his proper field of experience, and to do so upon no scientific basis nor in accord with any nosological categories. Such a mutilation must cripple his competence both as diagnostician and as teacher, and have unfavourable consequences for those who seek his advice as patients. Therefore the preservation of a coherent and complete field of experience is essential, and a condition of his competence within any part of that field.

How does the position of the neurosurgeon compare with that of the neurologist in these respects? Of its nature his is primarily and predominantly a therapeutic specialty, and that this is so is implicit in his training, for he passes directly from the general surgical to the neurosurgical clinic in all but the rarest instances—instances too few to invalidate the statement. He does not undertake a general neurological training, and whatever he may chance to see of what we may call non-surgical clinical neurology comprises no more than those cases that come into a neurosurgical clinic because someone outside it—in error or in doubt—happens to think them in need of surgical intervention.

The dominance of therapeutic thinking is also reflected in the routine to which these cases are commonly subjected once they enter the neurosurgical clinic. The bulk of the neurosurgeon's non-traumatic cases is made up of space-occupying lesions of one kind or another, and the great ingenuity and skill of the modern neurosurgeon have provided him with a range of diagnostic methods peculiarly his own for the recognition—or exclusion—of such lesions. These are ventriculography, encephalography, and arteriography, which are indeed amongst the major achievements of modern neurological diagnosis within their proper field. It is therefore not surprising that they should come to constitute the neurosurgeon's diagnostic weapons of choice.

The neurologist, faced by a new case, instinctively asks himself, "What is the matter with this patient?" and he is prepared to find the answer anywhere within the field of medicine. Whereas the neurosurgeon instinctively asks, "Has this patient a space-occupying lesion, and where is it?" It can scarcely be maintained that this is an ideal approach, for it carries a tacit assumption which it is neither safe nor reasonable to make as a routine. That upon occasion it has its striking triumphs few would deny, but it remains a method in which far too wide a margin of diagnostic error or failure is implicit—a margin far wider than that of the individual variations in diagnostic acumen possessed by different individuals, be they physicians or surgeons. It leads also, no less inevitably, to the undue use of the particular surgical techniques enumerated and, when these fail to yield relevant information, too often to a negative diagnosis, and to the ultimate handing over of the patient to the neurologist, to whom in such cases—if we are to be perfectly frank—it would have been better to refer him in the first instance.

All this is not to depreciate the importance of the neurosurgeon in the field of neurology. It is simply to indicate that his role is different from that of the physician; and that this point of view is not all pure hypothesis will be evident to whoever may have read Cushing's final analysis of his experience with brain tumours (*Intracranial Tumours*, Baltimore, 1932). In this we learn that some 2,000 histologically verified cases of tumour were admitted to his clinics over a given period of years, and that in addition there were also admitted 1,030 cases of "tumour suspect," and a third category of histologically unverified tumours the precise nature of which is not clear. The "tumour suspects" were comprised by cases of cerebral vascular disease, disseminated sclerosis, cerebral syphilis, encephalitis and its sequels, convulsive states, aneurysms, arachnoiditis, and psychoneuroses. Of this total of 1,030 not less than a quarter were subjected to craniotomy, with an operative mortality of 15%. It is probable that a proportion of the "unverified tumours" were of this order also.

In the event, then, it seems fair to say that, as we know it, neurosurgery is primarily and predominantly a therapeutic specialty, and one that calls for a wider range of diagnostic experience and methods than is generally possessed by those who follow it.

It may be argued that the remedy is to ensure for the neurosurgeon an adequate training in neurology; but, supposing for a moment that before embarking upon his operative career he were to undergo some such scheme of training as is foreshadowed in the report under consideration (and it is difficult to see how he would find time for it), his subsequent and inevitable preoccupation with surgical duties and interests would allow him scant opportunity of gaining over the wider field the clinical experience and judgment for which this training could be no more than a preparation.

Thus it would appear that, for the present, physician and surgeon have each a proper role, and each a different role, in neurology, and it would be as unreasonable for the physician to claim to be able to employ surgical techniques without due training and practice as for the surgeon to ask to be accepted as completely equipped to meet the wider range of diagnostic requirements it is the physician's prime duty to acquire.—We are, etc.,

F. M. R. WALSHE.
C. P. SYMONDS.

London, W.1.

Surgical Conditions in Medical Patients

SIR,—Dr. F. A. H. Simmonds's plea (Sept. 1, p. 299) for maintenance of collapse therapy when a surgical emergency necessitates admission to another hospital is a special case of a similar plea which should be made for every medical patient finding himself in a surgical ward.

Surgery is but a branch of therapeutics, and should assist and not interrupt medical treatment. Yet I have known pernicious

anaemia, ulcerative colitis, and even diabetes sadly neglected because a fracture or other surgical condition has intervened. Interruption of treatment upsets the physician also, and particularly if he is more interested in the life-history of patients with disease than in the immediate diseases (i.e., labels) themselves. All that happens to a patient under a physician's care should be the physician's concern, and he should certainly arrange to know about admissions of his patients to surgical wards in the same hospital. I can recall several acute "medical abdomens" rescued from laparotomy by this arrangement. Treatment, too, of some surgical complications is best carried out from the medical ward. The practice, for example, of admitting perforations to dietetic wards has much to commend it.—I am, etc.,

Chase Farm Hospital, Enfield. C. ALLAN BIRCH.

Domiciliary Midwifery and the Family Doctor

SIR,—I would like to record my appreciation and thanks to Drs. Logan and MacKenzie for their article on domiciliary midwifery (Sept. 1, p. 294). It is with increasing concern and dismay that we in country general practice have watched the mothers enter urban maternity home and hospital for their confinements. I use a gas-and-air apparatus, and the district nurse gives an injection of pethidine and some sodium amytal as the cervix is dilating. We are all happy and confident with this combination. Puerperal infection is very rare and neonatal infections are unknown in this area. Yet many of the babies born in urban institutions return with worrying pyogenic skin infections. The journals report successive series of severe and mortal epidemics of infantile diarrhoea in the newborn. I have never seen a case in the home of a confined woman.

It is my humble opinion that a G.P. is well equipped to handle the normal pregnancy, to diagnose and assess the abnormal developments, and to attend his patient's confinement, whether at home or in a near-by maternity institution. Small rural units for this purpose are essential, and this principle is already recognized in America.

The hours spent together by a doctor, the district nurse, and a woman in labour are essential bonds of experience and sympathy which give the doctor access to valuable family and personal matters so useful in assessing other illnesses in the family. It will dehumanize our profession, and retard the development of psychosomatic medicine by decades, if a cleavage occurs between family doctor and confined woman.

I hope the views expressed by Drs. Logan and MacKenzie will be strongly supported, and will help to decentralize some responsibility and skill back to the G.P. when plans for the new health service are laid down.—I am, etc.,

Grange-over-Sands. P. D. MULKERN.

SIR—Drs. Dale Logan and Eneas MacKenzie have stated their case very clearly for the retention of the family doctor in domiciliary midwifery. From Dr. Mackenzie we could not have expected otherwise, as he has been a doughty and humorous champion in this arena for many years, and his views command respect. Certain points in their article are deserving of further comment.

The authors take the attitude that the methods of general practitioners cannot be bettered, and that no corporate or other specialist body has the right to assail us. Criticisms, as indicated in the report of the Royal College of Obstetricians and Gynaecologists, are not groundless, and we are not in such a strong position as the authors think, even in Scotland. They state that the increased hospitalization of expectant mothers is due to the housing shortage. I beg leave to doubt this, though partially true. It is due to the appalling lack of domestic help in the homes of our patients. This increases the anxiety of the patient, and constantly hampers the doctor's work where such help, in his own home also, is usually meagre and reluctant. Nor can we expect much more assistance from the present Government than we had from the last. The domestic-help problem has been nibbled at, but never yet tackled seriously, and we carry on in a hopelessly unsatisfactory way.

Again, the family doctor, having far too much to do, must needs practise some form or other of "interference," when if he had the time to wait another hour or two a natural labour would be completed without any instrumental aid. Who of us can deny that we quite often are forced to keep one eye on the clock and the other on the perineum? Prof. F. J. Browne's admirable book on ante-natal care gives valuable advice on mental preparation of the expectant mother for her confinement, and the soothing of her anxieties over a possibly difficult labour, by relaxation, etc. How often can a harassed and busy practitioner find time to carry out these wise suggestions? In an age of hectic rush and speed we must combat a similar attitude and approach to the leisurely art of obstetrics; but, being caught up in the general maelstrom, and with endless other duties thrust upon us these days, it is quite impossible for the average family doctor to do so.

Our "house" is, therefore, not in order: far from it. What is the remedy? More houses, certainly; social security; healthy surroundings; adequate home help for the patient *and* the doctor; and, above all, many more doctors, and smaller practices. With these ends achieved, the standard of domiciliary midwifery practised by the family doctor would very greatly improve, the criticisms of the highbrows would be confounded, and the proposed National Health Service, inevitable as it seems, might have much of its objectionable bureaucratic control "left in the discard."—I am, etc.,

Thurso, Caithness. D. W. D. MACLAREN.

SIR,—It is with diffidence that one comments on opinions expressed by such authorities as the authors of the article in the *Journal* of Sept. 1, but surely it is going too far to assert, as they do, that the Maternity Services (Scotland) Act has changed the whole future of maternity practice in Scotland, presumably for the better, without some qualification. True, the Act points the way to an efficient service, but the way is long and the goal not just round the corner, as seems to be suggested.

One wrong turning is in sight now. Few will disagree with the statement that "the relief of pain is of supreme importance to a large percentage of parturient women," but how many realize that this relief is being withheld from a large percentage of the women attended under the Scottish Act, which permits a practitioner to leave the conduct of the confinement in the hands of the midwife when he is of opinion that labour will be normal. Increasing advantage is being taken of this permission, and it is now doubtful whether practitioners over Scotland as a whole are present at more than 50% of these "normal" births. Do none of these women require relief from pain? Yet the boast is made that "in Scotland we hold—and we are supported by the B.M.A.—that no midwife should be allowed to administer an anaesthetic without a general practitioner being present." One wonders what the unfortunate women think about it, and what would happen if the midwives, who have the thankless task of seeing them through unaided, insisted on sending for help on every occasion an anaesthetic was demanded by the patient.

As matters stand at present there seems very little to choose between the English and Scottish schemes, and our brethren in the South may be excused if they still prefer their infant mortality figures to ours. The practitioner cannot expect to have it both ways. Either the State-registered nurse-midwife should be allowed to administer an anaesthetic or the practitioner should guarantee to be on hand for that purpose. Surely, the experienced Queen's Nurse, whose efficiency, tact, and discretion are so justly praised, is competent to undertake this comparatively safe and simple operation if given the requisite training. To refuse her services and at the same time to leave her patient to suffer unnecessarily requires some justification beyond the pontifical utterance quoted above.

As usual, the local authority is criticized; this time for thinking too much in terms of institutions and too little in terms of the mothers' own homes. On other occasions the crime is failing to provide the necessary institutions. No local authority sets up a maternity home just for fun when the cost per patient-day is likely to be in the neighbourhood of 15s. and receipts from patients microscopical. They do so because (*a*) so many homes are totally unsuitable for a confinement, and (*b*) so many women desire admission, not only for the benefit of skilled and continuous nursing but also for the blessed escape it offers for a short time from all household worries. "Just like a rest cure" was the description given by one harassed mother.

In some small towns there are small maternity homes where patients are attended by their own doctors, whose views on the home versus the homes for normal labours would be enlightening to the advocates of the latter. The specialists have already had their say, and it may not be out of place for the administrative officer under the Act—the M.O.H.—to make a small contribution. He has the advantage—or perhaps it would be more nearly correct to say the disadvantage—of seeing the whole picture and the somewhat difficult task of reconciling theory with practice. If "within recent years no new era has dawned upon hospital and specialist obstetric practice," that is equally true of domiciliary practice, apart from the improvement due to outside help in the shape of skilled midwife assistance and financial and other aids given by the State and local authorities, without which midwifery practice would have little attraction to-day for the average practitioner.

The M.O.H. is probably in a better position than most specialists to appreciate the many difficulties encountered by the family doctor, with whom he sympathizes and is usually on excellent terms. Such help as he is able to give is not entirely unappreciated, but his efforts are not made easier by the arrant nonsense and cheap gibes which have disfigured too many letters in the *Journal* during recent years. Is it not time a halt was called to this one-sided carping? It may sound clever, even amusing at times, but if persisted in can only cause resentment and disunity at a time when it is of paramount importance to forgo petty squabbling and uphold the dignity and decency of medicine in the public view. A word in season from the *Journal* is long overdue.—I am, etc.,

Roxburgh. JAMES R. ADAM.

SIR,—The article "Domiciliary Midwifery and the Family Doctor" is like a breath of moorland air in a crowded street. I agree with every word the authors say, and hope they are right in their suggestion that the "present urge for institutional treatment [for midwifery] is a passing phase." It is no exaggeration to talk of the harm done at ante-natal clinics by unduly alarming patients about the dangers of confinement.

I heartily endorse all they say about Queen's Nurses, especially as regards the outstanding feature of their service being co-operation between doctor and nurse. The tendency for midwives to conduct a confinement on their own, and even to give anaesthetics, breaks this co-operation and is a retrograde step.

There is a question I would like to ask with respect to institutional midwifery. Is the method of preventing mixing of babies absolutely fool-proof? In other words, when the mother leaves the maternity block is she absolutely certain she has got her own baby?—I am, etc.,

Austwick, Lancaster. T. LOVETT.

Acute Inversion of the Uterus

SIR,—I believe that there can be no doubt that Dr. Vincent O'Sullivan (Sept. 1, p. 282) has discovered, and used with striking success, a new method of reducing the recently inverted uterus, and that it is a simple method likely to be of great value. As long ago as 1858 Dr. Tyler Smith introduced the plan of exerting on the inverted uterus "gentle and long-sustained" pressure by distending with water a rubber balloon placed in the vagina. With Dr. O'Sullivan's method the distended vagina would assuredly exercise pressure on the uterine surface more diffusely and presumably more effectively than would a rubber ball. Again the amount of pressure so exerted would definitely exceed that attained by the ordinary method of vaginal douching, which in itself had been associated, by those of us who have had cases of "spontaneous" reposition, with the vaginal douching prescribed as a cleansing measure in preparation for manual or instrumental pressure. Dr. Herbert Spencer (*Obstet. Trans.*, 1905, p. 227), in the discussion on a case of spontaneous reposition reported by Dr. Robert Boxall, agreed with the view that "possibly the gentle pressure of the stream of water had caused it." It would appear, therefore, that someone should have devised the method which Dr. O'Sullivan was astute enough to spot when it occurred fortuitously. In view of the rarity of this dangerous complication of parturition, he is fully justified in reporting an experience based on two cases only, in order that the method may be tested further by others as soon as possible.

It is vitally important to note and remember that he lays stress on the obligation of delaying the use of even this gentle measure until "shock is controlled." Finally, one cannot refrain from praising the magnificent feat of conservative surgery achieved in his second case.—I am, etc.,

Laugharne. MILES H. PHILLIPS.

SIR,—I was interested in the article by Mr. J. V. O'Sullivan (Sept. 1, p. 282), since in the East from very ancient times the urgency of acute inversion of the uterus has been recognized and countered by the postural method of immediate suspension of a patient in the almost vertical position by securing the feet to a pole (usually a bamboo), or by placing the patient, head downwards, on an acutely inclined plane made of rough-hewn logs. Thirty-five years ago I saw this method in use in the Chinese quarter of Bhamo in North-East Burma, and again later in a Bengal village. I was informed that such suspension for an hour or more was always successful, and a few years later I was able twice to demonstrate its efficiency in the labour room of the Eden Hospital, Calcutta, by just dropping the patient into the very highest Trendelenburg position and gently compressing the inverted uterus.

The proposal of Mr. O'Sullivan sounds ideal where the means exist, but maybe an occasion will arise in general practice where the tried wisdom of the East can be applied—that is, the use of a double clove hitch round the ankles attached to the bottom of a bed which is almost stood on end—a position that allows warmth, postural replacement, morphine, and rectal saline.—I am, etc.,

London, W.1. V. B. GREEN-ARMYTAGE.

SIR,—I read with interest the article by Mr. J. V. O'Sullivan; his method of treatment should help materially to reduce the high mortality of this rare condition. But it seems to me that in teaching the treatment of acute inversion far more emphasis should be placed on the *immediate* reinversion of the uterus *whatever* the condition of the patient. As Mr. O'Sullivan states in his record of Case I, on reinversion of the uterus "the signs of shock rapidly disappeared." To support the argument it may be of interest to mention three cases which I have had the unusual experience of seeing.

The first occurred after a normal pregnancy and first and second stages of labour. There was some delay in the delivery of the placenta, and Credé's expression was attempted without success. It was then noticed that the patient was becoming very restless and distressed, and she was returned to bed. I saw her about half an hour after the onset of the collapse, and we found she had then a complete inversion of the uterus, with the placenta attached to the fundus. She was profoundly shocked, but an immediate attempt was made at reinversion. The placenta was stripped off without difficulty, and it was found quite easy to replace the uterus following steady pressure with the finger-tips. No anaesthetic was given. The immediate improvement in the patient's condition was remarkable. No other treatment was given, and she made an uninterrupted recovery.

The second patient was admitted with a complete inversion some two hours after the condition developed; and in extreme shock. An attempt at reinversion was not successful (probably with Mr. O'Sullivan's method it could have been done quite easily), and she was desperately ill for three or four days, eventually reacting to the antishock measures adopted. The uterus gradually involuted, and eventually reinverted spontaneously some two months later while the patient was still in hospital.

The third patient was also admitted about two hours after collapsing, and she was moribund on admission. The uterus was completely inverted, with the placenta attached to the fundus. In view of her moribund condition an attempt was made to treat the shock first, but she was dead within a quarter of an hour of admission.

Surely the treatment of any case of shock is to treat the cause first if this is known. Mr. O'Sullivan recommends immediate replacement "before shock develops"; but will it not usually be found that shock appears at the same time as the inversion develops, due presumably to traction on the sympathetic system, and so cases are unlikely to be seen in which primary shock is not already present? As he states in his article, the degree of shock is "out of all proportion to the amount of blood lost."

It seems likely that, if this simple method were used as the first treatment to combat the shock, few other measures would be required.—I am, etc.,

Rothley, Leicester. A. M. FERENS BATTY.

Removal of the Wrong Eye

SIR,—Dr. H. M. Traquair (Sept. 1, p. 300) writes to inquire whether the removal of the wrong eye is to be regarded as a "hypothetical possibility rather than as an actual fact," and goes on to say that he has never heard of a case. I have personal knowledge of one such case, for I knew the surgeon well and the hospital where it occurred, and, indeed, all the subsequent story of the bitter remorse of the surgeon and the efforts taken to alleviate, so far as possible, the terrible blow to the unfortunate patient, who was totally blinded.

The possibility of such an accident is always present when there is no external evidence of disease in the affected eye such as may be the case in an intraocular tumour. I always practised and always taught students to practise, as a routine measure, the simple expedient of plainly marking the brow above the eye to be excised before the anaesthetic was started.

I know of another case, though I had no personal acquaintance with it, where the surgeon had just started to remove the wrong eye, but was stopped before any serious harm had occurred, by his assistant, who expressed a doubt on the matter. A hasty reference to the notes showed that the assistant was right, and a stitch or two in the conjunctiva, which I assume required a little explanation, sufficed to avert a major tragedy.

Dr. Traquair finds it difficult to imagine that a tragedy of this nature could occur without its being recorded in print; but surely it is scarcely a matter for surprise. The surgeon would obviously refrain from advertising his carelessness in the medical press, and most assuredly would adopt every means in his power to prevent the case appearing in a public court.—I am, etc.,

London, W.1. ARNOLD LAWSON.

Penicillin: Need for Control

SIR,—Supplies of penicillin will soon be available in unlimited quantities, and I feel it is timely to ask as a venereologist if the dangers of the uncontrolled issue of this preparation have been considered. The salutary lessons of the "just a couple of tablets" cure of gonorrhoea during the days of the sulpha series seem to have been forgotten in our new enthusiasm for the "just a couple of injections" in the present penicillin era, if one can judge not only from the reports in the non-medical press but also, unfortunately, from the large number of uncritical reports published in our own journals. Let it be remembered that now syphilis is included, and "cure" is being claimed long before any real assessment of cure is possible. Let me therefore stress the following points.

1. While penicillin undoubtedly kills the gonococcus and *Sp. pallida*, the *diseases* caused by these organisms in the human body bring about vast pathological and humoral changes which of necessity introduce factors which interfere with the lethal properties of the preparation.

2. Dosage is at present empirical, and failures are admitted even by the most enthusiastic. It is interesting if one compares the percentage cure rate in gonorrhoea claimed in the early days of sulphonamides with those now claimed for penicillin.

3. It follows from 1 and 2 that patient evaluation of results over many years, paying more attention to our failures than presenting glowing percentage cure tables, is necessary if we are to disseminate real knowledge and counteract in the lay mind the pernicious effects of articles on "wonder drugs" in the non-medical press.

4. Venereal disease by its very nature tends to become the happy hunting-ground for uncontrolled therapists if an added element of secrecy is thereby obtained. Can we imagine the chaos with the arrival of "tabs. penicillin"?

5. Unlike the sulpha drugs and arsenic, penicillin being non-toxic can be used with impunity.

Enough has been said to indicate the necessity of pressing for control now before penicillin supplies are released, and I leave it to others to point out the dangers that will certainly follow the improper use of penicillin in other specialties. Finally, this letter is not written to belittle in any way the remarkable properties of penicillin or the hope that it gives for the future treatment of venereal disease.—I am, etc.,

Streatham, S.W.16. F. L. LYDON.

Posture during Acute Rheumatic Fever

SIR,—Many textbooks on medical treatment declare that during the acute stage of rheumatic fever with cardiac involvement the patient is best nursed lying in bed without pillows, and that these should only be gradually added when there are signs of improvement. This method, however, seems to me to be a mistake, and even to embarrass the heart in the very way it tries hopefully but incorrectly to avoid.

We all know that a patient with cardiac failure will adopt the sitting posture in preference to lying down, before signs of dependent oedema or ascites have yet developed. Experimentally, this subjective feeling of orthopnoea has been shown to have partly a haemodynamic explanation, and many workers (e.g., "Cardiac Output in Man by a Direct Fick Method," John McMichael and E. P. Sharpey-Schafer, *Britsh Heart Journal*, 1944, **6**, No. 1, p. 34) give figures showing that the cardiac output may be increased by as much as 33% in changing from the erect to the supine position. Therefore in grave cases of cardiac distress it would be much more appropriate to nurse the patient sitting up in bed, in order to give the heart the least possible burden, rather than lie him down, increase the heart's work, and so harass it.

I would like humbly to suggest that the time-honoured, though unfortunately inaccurate, method of nursing these patients without pillows be reconsidered and a more rational approach made to a small but nevertheless significant measure in the therapy of a widespread and distressing malady.—I am, etc.,

Hampstead, N.W.6. LEON RADCLYFFE.

Poisoning by Accidental Drinking of Trichlorethylene

SIR,—Two cases of poisoning by accidental swallowing of trichlorethylene were described in your pages on Aug. 18. May I add a record of another case in which the quantity swallowed (1/2 oz.) was the same, but the effects less severe. Perhaps this was owing to delayed absorption by the stomach, the poison having been taken at 10.15 a.m., immediately after a large breakfast, on April 15, 1945. I saw Miss X, aged 15, an hour later. Her relations had tried, but failed, to make her vomit. I washed out her stomach, and she aided in this manœuvre by vomiting copiously. She was then complaining of dizziness, and numbness of hands and feet. The knee-jerks and biceps-jerks were equal and normal, but she could not hold anything firmly. At 11.30 a.m. she complained she could not hear very well; and at this time she also had incontinence of faeces and began to cry for her mother. She did not lose consciousness, but appeared dazed. She had complete amnesia of the interval 11.30 a.m to 2 p.m. on that day. During the next 24 hours her appetite was poor, but after that she was perfectly fit. A blood count taken on April 18 showed no abnormality.—I am, etc.,

NORA NAISH.

Pasteurization of Milk

SIR,—It would seem from a perusal of the recent correspondence on this subject that most members of our profession still regard good health as being due to the absence of pathogenic bacteria, and all the evidence, both recent and remote, that good health is due to a way of life is ignored. That vigorous health can usually be obtained by following certain simple natural laws is forgotten by all but a notable few. Such things as cleanliness, or the quality of the animals we eat or which provide us with milk, are matters that only cranks bother about. And so we have the present situation in which the general public is told that, although part of its diet consists of sewage, it does not matter in the least so long as that sewage is pasteurized!

In fact, as the guardians of the people's health, we are now advocating the spending of millions of pounds on apparatus for this purpose of sterilization. "Then," we say in effect, "you may eat any filth you like, whether the produce of a cesspool or the fluids which have come from the disease-ridden body of a tuberculous cow, and provided you pasteurize it first

it will keep you in health and supply you with the food you need! The fact that it is brimful of waste and toxic materials and contains billions of dead disease germs does not really matter, for it has been put through a special magical process that turns the foulest refuse into excellent food, and in these days of shortage what could be more commendable?"

Since the conditions of milk production in this country are so deplorable it will no doubt be necessary, *as a purely emergency measure*, to institute widespread pasteurization. But in so doing let us make it abundantly clear, with the utmost publicity, that such pasteurization is a temporary procedure, until such time as we improve the quality of our milk production and remove the ignorance of many of those who handle it. If the emphasis is put on pasteurization, as at present, we shall only succeed in further debasing our food supply, whereas a campaign aimed at the enforcement of scrupulous cleanliness and an insistence on giving our cattle the same care and hygienic treatment we give our racehorses would result in a healthy milk supply, free from disease and of high food value.—I am, etc.,

Slough. H. TUDOR EDMUNDS.

Why "Hyperbaric" and "Hypobaric"?

SIR,—To the unlearned these unnecessary words with opposite meanings are dangerously similar: if they have been coined in order to display their inventor's erudition he should consult the friend (or enemy) of his schooldays, "Liddell and Scott," which translates ὑπερ-βαρής as "overloaded; overweighed; exceedingly heavy," and ignores the possible existence of such a word as ὑπο-βαρής. In the interests of accuracy and of our patients' lives let us stick to "heavy" and "light," at any rate when talking of spinal anaesthetics.—I am, etc.,

H. WILLIAMSON,
The Viceroy's House, New Delhi. Lieut.-Col., I.M.S.

Press Publicity

SIR,—Having been the subject this week-end of much unwanted and unexpected publicity may I say a few words on the particular circumstances. As I have the honour to serve on the Journal Committee it is perhaps only right that I should also add something on medical publicity in general, to let my constituents know my attitude on the matter.

First of all I should naturally have preferred to avoid all interviews, etc., but when the first reporter, on my asking why he wished to see me, said that I must know that I was the first doctor in this country to put in print that he practised euthanasia, it was obviously necessary for me to try to make him understand the difference between that and giving a dose of morphine to a person apparently dying from coronary thrombosis, even though I thought it unlikely that he would wake up again. This I found no easy job, and the few remarks made in the Press about coronary thrombosis show that I succeeded very poorly.

One difficulty about living in a house where my family have practised medicine for nearly a century is that I myself can have few personal secrets. Similarly, in a small town where intermarriage is common it is practically impossible to hide the identity of any patient about whom one may write if people are really anxious to identify him—which was never anticipated when I wrote my paper. My patient was, however, quite willing for me to mention his case if it would, as he said, save anyone a minute of the agony he had endured till the intravenous morphine cut it short.

It seems that great numbers of readers are interested in names and other personal details, and this leads to perhaps the most objectionable side of newspaper reporting, especially from the medical point of view. The subjects discussed in my paper were of the highest possible medical, human, and social importance, and I tried to treat some of the problems connected with approaching death simply and scientifically, and yet also as a man, a citizen, and often a friend. There is vast scope for much fuller and more authoritative treatment of the matter, but if every effort is to be the subject of general publicity, and if the more striking occurrences, which every doctor must meet and which so often point the way to unsolved problems, are to be sensationalized in the way some reporters seem to wish, the efforts will be few and progress slow—to the inevitable loss and suffering of the public.

When once an article has been published it is open to any newspaper to make whatever use it wishes of its contents so long as comment is reasonable and fair and does not amount to wholesale plagiarism. Personally I welcome any effort by the general press to stimulate interest in medical matters among their readers, but, as certain extracts from my paper showed, it is only too easy to take sentences out of their setting and so give a distorted or sensational view of what has been written. It seemed to me that reporters have a leaning in this direction which is not, on the whole, shared by their editorial staffs; indeed the last telephone call of the day—at 1.5 a.m.—was from an editor who wished to confirm that what had been written would not offend any ethical rules or be likely to cause me annoyance. In the end he left it all out, and so did several other papers that were contemplating some references to my article.

It is perhaps a curious commentary on public taste that, though various papers gave different excerpts from my article, none of them made allusion to what was perhaps the most dramatic as well as the most scientifically based section of all—the use of cardiazol ephedrine in asphyxia neonatorum. Apparently the public is more interested in the tragedy of death than in the more wonderful drama of birth, just as efforts at destruction in war have hitherto greatly exceeded efforts to establish peace.

I have not seen all the newspaper references, and there have been things which I regret; but looking back I cannot but be struck by the amazing pertinacity of the pressmen to get what they want—however little some of their methods may commend themselves—and also by the genuine effort of all the editorial staffs with which I came into contact to do the right thing by the doctors, while, of course, also giving their readers what they think they would like. Where there is such a feeling of good will I feel sure that doctors should realize it and try to develop it, not for personal or professional ends, but to help educate the public in some of the facts of health and medical practice: its needs, its achievements, and its opportunities; its weaknesses and shortcomings; for it is only by cultivating public opinion that Government intervention can be prevented from specious and hasty policies and guided into fruitful channels and wise legislation.—I am, etc.,

Winsford. W. N. LEAK.

Doctors and the Social Trend

SIR,—May I through you acknowledge the unanimous support of those who kindly wrote to me on the subject of my letter which appeared under the above heading on Aug. 18. Judging by the letters printed in the issue for Sept. 1, the others appear to have written to you, Sir.

Contrary to the opening statement in Dr. W. B. Pemberton's letter, many believe we went to war to *preserve* social trends and to overthrow all power exerted against the right of peoples to evolve their institutions by means of freely elected representatives. It is absurd that Dr. Pemberton's most ignorant uncertified patient should have as much say in the determination of our future institutions as his doctor, but, for all that, I remain a democrat in company with the majority. Also, in spite of Dr. Kate Harrower's remarks one cannot fly even Conservative "colours" in the face of a good democracy. She will note that the reason Mr. Churchill "has not been swept very far aside" is because he, in a statesmanlike manner, has abandoned the tone of his electioneering and made it clear that he does not regard the function of H.M. Opposition as obstructionist or necessarily uncooperative. His example might appeal to some people who find themselves in opposition to the Government outside the House.

While Dr. Pemberton is accusing me of defeatism for failing to emulate the miners and dockers (General Strike, 1926?) Dr. Norman P. Henderson on the opposite page expresses the opinion that "doctors have never desired to oppose the wishes of the public." But all this unpractical talk about our "unassailable position" and united opposition to "dictation" clearly threatens opposition to the wishes of the public. It is as reminiscent of an aboriginal war dance as any "example" we have had from "Australia and New Zealand." It may be "heartening" to a few warriors, but it is the despair of those who hope to retain public sympathy.

Dr. Henderson states that the Government *will* "demand a full-time salaried service," and at the same time thinks it "unfortunate" that I should have so far assumed "the role of a prophet" as to venture the suggestion that we *may* now have to face such a service. After all, as he says, "most of us are aware of the Labour Party's proposals for a National Service for Health." The point is, Are we going to consider any such proposals from the accredited representatives of the people in the dual role of public servants and expert advisers, or are we already challenging the Government as the unrelenting champions of minority interests? It would seem advisable to announce a broadly co-operative attitude at once, and reserve any opposition for matters of detail later. We are not sufficiently united or strong to stage a retrial of the broad issues which were settled at the General Election. As I pointed out, we could not hope to succeed where Mr. Churchill failed. Whereas the Government might go far to meet us over important details in return for our good offices, its continuance or fall depends, as Dr. Henderson intimates, on its ability to prove that it has promised "something it was sure it could carry out." What people like Dr. Pemberton propose is practically mob law. They wish to oppose the Government to a greater extent than is open to their representatives in the House of Commons. That sort of opposition would indeed invite comparison of doctors with the very worst elements among the miners and dockers.

It is to be hoped that before long we shall have a really statesmanlike pronouncement from the B.M.A. parallel to Mr. Churchill's declaration of opposition policy in Parliament. In the meantime may I once more counsel a larger view of the profession's position in this democratic island and beg that it shall not be compromised further by obstructionist activities.—I am, etc.,

Eye, Suffolk. J. SHACKLETON BAILEY.

SIR,—Dr. Norman P. Henderson writes (Sept. 1, p. 302): "In the event of the full-time [medical] service failing (as it has to a large measure in Russia) . . ." It would be interesting to know on what grounds he bases the statement in parenthesis. All I have read of the socialized medical services in the Soviet Union, in both Russian and English, written by both Soviet and British doctors, suggests that the Soviet health services have been very successful, and, in particular, have tremendous accomplishments to their credit during the war years, which would hardly have been possible with any other form of organization. All the articles which have appeared in the *Journal* confirm this, and do not in the least bear out Dr. Henderson's statement.—I am, etc.,

Nelson, Lancs. T. D. CULBERT.

Ludwig's Angina

SIR,—Mr. Hamilton Bailey (March 17, p. 384) criticizes an article on Ludwig's angina (March 3, p. 295) by Majors John Farr and E. D. Stanhope in which they advocate endotracheal anaesthesia. I suggested this method to them, although I was not associated with them for the series discussed in their article.

The answer to Mr. Hamilton Bailey's theoretical objections is that the tube *does* go in! It is not necessary to have the patient deeply anaesthetized before a tube can be passed beyond the vocal cords. It can be passed under nitrous-oxide-oxygen anaesthesia. No anaesthetist, however experienced, would claim to intubate by the blind method in 100% of cases. I will, however, admit the theoretical point (and time will tell if it is also a practical one) that it may not always be possible to intubate under vision in these cases; but surely that is no reason for avoiding any *attempt* at this method of anaesthesia, since—to quote Mr. Hamilton Bailey—"Obviously, if the larynx is intubated the principal danger of the condition and the anxieties connected with the anaesthetic fade into insignificance."

One cannot estimate the degree of oedema of the larynx without looking at it, but I am under the impression that most of the obstruction in Ludwig's angina comes from the swelling of the tongue and floor of the mouth. No obstruction has been felt as the tube passes into the larynx, and no difficulties from laryngeal obstruction have been noticed on removing the tube at the end of the operation. The following procedure has proved satisfactory in a small series of cases.

In accordance with Hewer's dictum that *any* patient is improved by the inhalation of oxygen, the face-piece of the Boyle machine is applied and oxygen given. Gradually nitrous oxide is added until automatic respirations are established, and, if the condition of the patient requires and warrants it, a little trilene. The Magill tube is then passed by the blind method, and anaesthesia and the operation continued at leisure. A tracheotomy set is always at hand, as stressed by Major Farr.

I have not had to use a laryngoscope in any of these cases, but it was envisaged that, should intubation fail, the surgeon would have to be prepared to do the operation immediately under gas-and-oxygen anaesthesia. Finally, intravenous anaesthesia is contraindicated in all cases of respiratory obstruction, whether the mouth can be opened or not.—I am, etc.,

J. H. WEST,
East African Command. Major, R.A.M.C.

Means for Keeping up the Population

SIR,—Much has been said and written recently on the subject of the prospective decline in our population. May I put forward the following outline of a scheme for dealing with the problem.

1. Set up crèches in every district, where mothers may, for a reasonable fee, leave their young children in the afternoon. This would enable the mother to enjoy some recreation, which would broaden her outlook, thereby making her a better parent. It would also enable the expectant and nursing mother to have that "rest in the afternoon" which at the present day is usually merely a textbook phrase.

2. Provide "domestic helps," adequately trained and paid by the State, for a certain number of hours each day from two weeks before till three weeks after confinement in a normal case—more where special conditions demand it. This care of the mother in the puerperium would also result in a vast reduction in the number of gynaecological cases which fill our hospital beds and (I may add) lower the efficiency of the patient as a mother.

3. Let us tackle the question of septic abortion. If the figures of the mortality due to this condition could be assessed I feel sure they would be comparable with the maternal mortality from all other causes combined. Moreover, for every fatal case there are many more women rendered chronic invalids (and sterile) for life. The majority of these septic abortions are not performed by professional abortionists on unmarried women or women with husbands in Burma; they are effected by the women themselves—married women with husbands at home. The risks they run must be brought home to them by some form of publicity similar, if modified, to the V.D. campaign now in progress. Thus the lives and health of thousands of women in the prime of life may be saved.—I am, etc.,

Rotherham. ANNE M. TOMS.

Taking the Waters

SIR,—The therapeutic value of spring or spa water was originally on account of its powers of rejuvenation, and the sanctity of the holy wells in this country probably goes back to the days of the megalithic civilization of some two thousand years B.C., which derived its ideas from Egypt or Sumer via Crete and the Iberian peninsula. The alleged healing wells were not discovered by the medical profession but by the pilgrims who thronged them as places of sanctity, which thus attracted the doctors. Harrogate waters, for example, were not discovered in the 16th century; the original patron saint was possibly the Egyptian Horus the Child—according to the views of the late Dr. Rendel Harris and others—in his capacity as the deity of rejuvenescence. Later he was supplanted by St. Mungo (with St. Robert), who, as a "twin," possessed the powers of his predecessor, as do all Dioscuri or Heavenly Twins.

The holy well is generally the fountain of eternal youth, whose popularity has now been supplanted by the glands of the monkey. Prof. Stanley Davidson's report on the negative value of spa waters—the subject of an annotation in the *Journal* of Aug. 25 (p. 259)—instances how long religious superstition can remain in the minds of so-called educated men and women. It is said that the Phoenix rejuvenated himself not only in the fount of youth but also by fire. Possibly he was also aware of the doubtful value of sacred spa water and utilized an alternative and more reliable method.—I am, etc.,

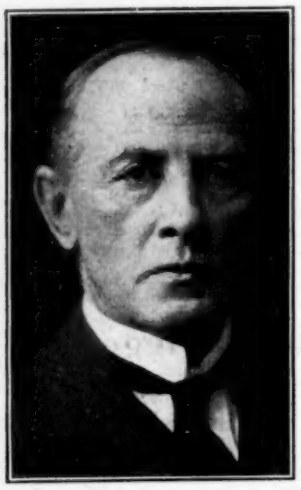
Bournemouth. LOWELL WEBB

Obituary

J. T. WILSON, LL.D., M.B., F.R.S.

We regret to announce the death on Sept. 2 of Emeritus Professor J. T. Wilson, the distinguished anatomist who held the Challis chair of anatomy in the University of Sydney for 30 years and the chair of anatomy at Cambridge for 14 years, and was president of the Anatomical Society of Great Britain and Ireland in 1924–5. He was looked up to with affection and regard by generations of pupils and younger colleagues in this country and in Australia.

James Thomas Wilson, son of Thomas Wilson, was born at Moniaive, Dumfriesshire, on April 14, 1861, and studied natural science and medicine at the University of Edinburgh, where he, like many others, came under the powerful influence of Sir William Turner, the professor of anatomy, who was quick to recognize and encourage men of promise. Wilson graduated M.B., C.M. in 1883, and after a house-surgeoncy at the Edinburgh Royal Infirmary served for a year as demonstrator of anatomy in the university. In 1887 he left for Australia to become demonstrator of anatomy in the newly established medical school of the University of Sydney, and in 1890 was elected to the professorship of anatomy created in that year. Thenceforward until 1920 Wilson built up and consolidated the Sydney school of anatomy and made great contributions to knowledge. His work in the comparative anatomy of Australian fauna and in embryology was recognized by his election as F.R.S. in 1909, and the University of Edinburgh conferred on him its honorary LL.D. Public duties also claimed his time and energy; he was given command of the Australian Intelligence Corps before 1914, and on the outbreak of war undertook the organization of the censorship in New South Wales. In 1920 he returned to Britain on accepting the chair of anatomy in the University of Cambridge, where he was elected a Fellow of St. John's College and received the M.A. degree *honoris causa*. For the next 17 years he represented the Australian universities on the executive council of the Universities Bureau of the British Empire. His 14 years as head of the anatomy department at Cambridge were happy and fruitful. On his retirement from the chair at the age of 73 he was made professor emeritus and continued to live in Cambridge, where he delighted to welcome visiting scientists and medical men from Australia.



Prof. Wilson was a member of the Council of the Royal Society in 1921–3, and an honorary member and past-president of the Linnean Society of New South Wales. He was also an honorary member of the Royal Society of New South Wales and an honorary Fellow of the Royal Society of South Australia. He joined the British Medical Association in 1894, and held office as vice-president of the Section of Anatomy at the Annual Meeting in Glasgow in 1922. He was president of the Cambridge Philosophical Society in 1924–6.

Dr. JAMES POWELL, of Sennybridge, Breconshire, who died on Aug. 2, was born at Danygraig, Aberdare, and was educated at Monkton House, Cardiff, and Christ College, Brecon. He received his medical training at Cardiff Medical School and at St. Mary's Hospital, London, qualifying M.R.C.S., L.R.C.P. in 1911, and later taking the D.P.H. of Oxford. Dr. Powell first practised at Clydach Vale, and later was assistant M.O.H. at Aberdare; from 1919 he carried on an extensive practice at Sennybridge. He joined the B.M.A. in 1912, and was a member of the Local Medical War Committee and the Breconshire Insurance Committee. He was medical officer of the Sennybridge St. John Ambulance Brigade and Nursing and Cadet Division.

Dr. W. S. TRESAWNA died on Aug. 21 at his home in Abergavenny, where he had practised (save for the war years 1914–18) since he joined the late Dr. Gamble in partnership 36 years ago. His death robs the district not merely of a highly efficient practitioner and senior M.O. to the Royal Victoria Hospital, but of a colourful personality and of a very popular all-round sportsman. William Samson Tresawna was born 66 years ago in Cornwall, and was educated at Probus and at Sidney Sussex College, Cambridge. He went to St. George's Hospital, London, for his clinical work, and qualified as M.R.C.S., L.R.C.P. in 1905, proceeding to the M.B., B.Ch. at Cambridge in 1907, after holding the usual resident appointments at St. George's. He was a really good cricketer, though handicapped by myopia—but for which, his friends believed, he must surely have got his Blue. He played many fine innings for the Cornwall County eleven, of which his elder brother was for some years the captain, and had the knack of turning out for an occasional game, wholly short of practice, and gathering a century in glittering style; he was also a fine fielder. In addition, he was a good golfer and a keen rider to hounds. He was for a long time a battalion medical officer in the 1914–18 war, and was mentioned in dispatches. A true Cornishman by descent, his handsome hawklike mobile features, always alive with fun and humour, his wavy black hair and dark complexion, all made it easy in his student days to believe the currently accepted view that a strong Phoenician strain tinges the blood of the old Cornish families. Dr. Tresawna married Vera, third daughter of the late Dr. Charles Tuke (one of the three brothers who carried on the very well known private mental hospital at Chiswick House). She survives him with four daughters and one son, Lieut.-Col. R. Tresawna, D.S.O., of the D.C.L.I.

Dr. ARTHUR WALKER, who died on Aug. 22 at the age of 73 years, is widely mourned in Weston-super-Mare musical circles, in which he was well known and appreciated as honorary secretary of the orchestral section of the Music Club and as a 'cellist with the Red Triangle Orchestra. From the Manchester Medical School he qualified M.R.C.S., L.R.C.P. in 1894, and after house posts, service as ship surgeon, and other appointments he settled in general practice at Glossop in 1898. Having later developed a keen interest in ophthalmology and acted as school oculist to the Glossop Education Committee, he successfully applied in 1923 for the position of county oculist for Somerset, and he came south to reside in Weston-super-Mare. It was a most happy appointment for the Somerset school-children. He was a family man, and thorough and self-sacrificing in all his duties. In his private practice he was so much the beloved physician that more than 20 years after leaving Glossop many of his old patients kept up their grateful friendship with him.

Dr. ARTHUR HAMILTON LOWE, who died in retirement at Southbourne, Hants, on Aug. 29, had been for ten years county medical officer and tuberculosis officer for Kesteven, Lincs. The second son of G. M. Lowe, M.D., he was born at Lincoln on Sept. 13, 1869, and from Lincoln Grammar School went to study medicine at the University of Edinburgh. He graduated M.B., C.M.Ed. in 1893 and took the Dublin D.P.H. in 1911. Before entering the public health service Dr. Lowe had served as senior house-surgeon at the West Ham Hospital and resident medical officer at the Newark Hospital. During the war of 1914–18 he held a commission as temporary captain, R.A.M.C. He was chairman of the Kesteven Division of the B.M.A. in 1934–5.

A correspondent writes: The numerous friends of Surg. Cmdr. JOHN DAVIES will have heard of his recent death with a deep sense of personal loss. At the outbreak of the war he immediately volunteered for active service, and obtained a temporary commission in the R.N.V.R. He was soon employed on neuropsychiatric duties, for which he proved to be particularly gifted, and subsequently served as a neuropsychiatric specialist in naval hospitals both in this country and in Egypt. "Jackie" Davies was a doctor of quite outstanding capacity, well able to hold his own with any medical specialist. Consequently, throughout his Service career his opinion was repeatedly sought in general medical as well as in neuropsychiatric cases, and this involved a great deal of extra work; but he always appeared to be eager and willing to help and never complained. His small, slight physique, thick grey hair turning white, and pleasant Welsh voice made him a memorable figure. He was an admirable messmate, and invariably equable, active, and cheerful. Few men can have worked harder during the war, been more popular, or have done a better job. And when, in the spring of this year, he learnt that he was suffering from malignant hypertension, he faced the news with great courage, and so continued to the end, greatly fortified by his brave and devoted wife.

Dr. H. DOUGLAS SMART, who died on Aug. 29 at Barnham, Sussex, was school oculist to the West Sussex County Council, honorary ophthalmic surgeon to the Victoria Hospital, Romford, the Forest Hospital, Buckhurst Hill, and the Jubilee Hospital, Woodford, and also oculist to the Ilford Borough Council Education Committee. Born in Bermondsey on July 14, 1880, son of Dr. David Smart, he was educated at Merchant Taylors' School and Guy's Hospital, qualifying in 1903. He obtained the M.B.Lond. degree in 1904, the B.S., with honours, a year later, and proceeded M.D. in 1906. During the war of 1914–18 he served as M.O. to the 8th Batt. Lincolnshire Regiment and as second-in-command of the Cannock Chase War Hospital, reaching the rank of major and winning the Military Cross. After a period of practice in partnership at Shelley, Huddersfield, he devoted himself to eye work and became chief clinical assistant at Moorfields and at the Western Ophthalmic Hospital. He had been a member of the B.M.A. for 34 years.

K. W. M. writes: In the passing of Dr. ERIC BIDDLE, as the result of a motor-cycling accident, a humorous, kindly, and benevolent character will be missed from the pathological laboratory of the East Suffolk and Ipswich Hospital. Appointed as the first pathologist to a fine new department, just opened by H.R.H. Princess Mary, Dr. Biddle organized a service which was to expand rapidly during the next few years. So liberal was his nature that in addition to his plentiful work he became curator of radium and penicillin officer. He was among the first who saw the importance of a blood transfusion service, and from small pre-war beginnings he gradually built up a war service which ultimately occupied a considerable part of his spare time. These bleeding sessions were a joy to his co-workers as well as to the donors, all of whom were kept in good humour by his wit and limitless fund of anecdotes. During his 18 years in Ipswich he made many friends by the geniality of his nature. He found company and relaxation in music, founding the Nurses' Music Club, and although not a performer himself it was his pleasure to give many gramophone recitals of classical music. He was a member of the Ipswich Photographic Society, and his skill in this pastime was always at the disposal of his medical colleagues in the preparation of medical data.

A correspondent writes: Those who know the British Legion Village near Maidstone will learn with deep regret of the death of the Matron, Miss E. LEE. For over twenty years—since its foundation—she had been the matron and helped the settlement to grow from a small sanatorium of 70 beds to a flourishing village of more than 1,000 people. In the 1914–18 war she did yeoman work for the troops in Salonika. She later worked at Papworth as assistant matron, and it was from there, on the recommendation of Sir Pendrill Varrier-Jones and Miss Borne, that she was chosen as matron at Preston Hall in 1925 when it was taken over by the British Legion as a village settlement.

Medico-Legal

A SOLICITOR AT FAULT

"Ambulance chasing" is the practice of seeking out victims of road accidents and persuading them to agree to an arrangement by which a claim for compensation is made on their behalf and the proceeds divided. The case is usually settled for a deplorably small sum. The solicitor is strictly forbidden to take part in this kind of activity. By his rules of ethics, touting for clients is disgraceful conduct, just as to seek out patients is disgraceful for doctors. He is therefore forbidden to accept a client who has been brought to him by a lay tout. Similarly, he may not associate with any person (or organization, other than a charity) who is beneficially interested in accident claims but is not a solicitor. Before he accepts instructions to proceed with any accident claim he must make reasonable inquiry to see whether in accepting it he will be breaking one of these rules.

A solicitor was recently summoned before the Disciplinary Committee of the Law Society for accepting instructions in nine cases from a member of a body called the "Ex-Regulars Association" without making reasonable inquiry. Some years earlier he had written to the Law Society asking for a "waiver" of the rules—i.e., an exemption which the Law Society has discretion to make in suitable cases—in the case of this body. He explained then that he acted as its "honorary solicitor"; that when a member satisfied the organization that a prima facie case existed which required help the organization issued a letter of introduction to its honorary solicitor and proceedings were started on the member's instructions. The solicitor, he said, received only a retaining fee based on the work done and on disbursements incurred on behalf of its members. The member paid profit costs in accordance with his means as ascertained by the organization. The council of the Law Society had granted a waiver for three years. In September, 1939, being dissatisfied with the solicitor's conduct in a case which he had taken up without any proper authority from the member on the introduction of a representative of the Ex-Regulars Association, the Council withdrew its waiver. In the present case it found he had broken the rules by not making reasonable inquiry, and suspended him from practice for two years. The Court of Appeal upheld its decision.* Lord Justice Scott said that a solicitor owes a positive duty to make reasonable inquiry if he does not know enough to make him substantially certain that there is no risk of mistake. His obligation is greater if he already has reason to suspect that the organization introducing the client is wittingly or unwittingly putting him in danger of breaking the rules. It is greater still if he has already had a warning from the Law Society that his relations with the organization are dangerously near the borderline of professional propriety. The court dismissed his appeal with costs.

The case shows the strictness of the rules governing this kind of practice. There was no suggestion that the association conducted a touting business, still less that the solicitor had any part in persuading the claimants to let him act for them; nevertheless the Law Society imposed a severe penalty. Hospitals who find that "ambulance-chasers" are a nuisance to them by unsettling patients and summoning medical officers as witnesses will find the Law Society very co-operative in counter-measures.

*Re A Solicitor (1945) 1 All E.R., 445.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

Sir Lionel Ernest Howard Whitby, C.V.O., whose appointment as Regius Professor of Physic was announced last week, was born in 1895 and entered Downing College, Cambridge, in 1918 with a senior open scholarship which he had won in 1914. He also won a scholarship and prizes at the Middlesex Hospital, after serving in the war of 1914–18 as an infantry major and gaining the Military Cross. He graduated in medicine in 1923, proceeded M.D. in 1927, and was elected F.R.C.P. in 1933. He gave the Bradshaw Lecture before the Royal College of Physicians in 1938 and was awarded the John Hunter triennial medal and prize by the Royal College of Surgeons in 1939 for his work in perfecting the drug sulphapyridine while holding the post of bacteriologist at the Middlesex Hospital. During the present war he has been officer in charge of the Army Blood Transfusion Service and consulting physician in blood transfusion to the Army with the rank of brigadier. Prof. Whitby was knighted this year, and in July received the triennial gold medal of the Royal Society of Medicine for his distinguished work on wound shock and the transfusion of blood and blood derivatives.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At a meeting of the Faculty held on Sept. 3, the President, Mr. William A. Sewell, in the chair, J. P. Currie, M.D., and M. M. Whittet, M.B., Ch.B., were admitted Fellows of Faculty.

The Services

CASUALTIES IN THE MEDICAL SERVICES

Missing, presumed killed.—Temp. Surg. Lieut. John Murdoch Blyth, R.N.V.R.

Wounded.—War Subs. Capts. J. M. Hamilton, M.C., and P. G. S. Johnson, R.A.M.C.

The September issue of *C.M.S. Outlook*, published by the Church Missionary Society, 6, Salisbury Square, London, E.C.4, contains an article by Dr. Norman S. Macpherson entitled "Vellore: A Venture of Faith," giving an account of recent progress and planning at the medical school and hospital at Vellore, in South India. The Christian Medical Association of India, in consultation with workers on the spot, has decided to develop the existing medical school and hospital at Vellore into an All-India Medical College for men and women, to prepare them for the M.B., B.S. degree of a university.

No. 34

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Aug. 25.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945					1944 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	47	2	23	—	2	30	1	17	—	—
Deaths		—	1				1	—		
Diphtheria	409	23	134	55	13	410	9	134	95	15
Deaths	2	—	—	1	—	3	—	1	1	—
Dysentery	232	31	73	1	—	299	11	15	—	1
Deaths				—	—				—	—
Encephalitis lethargica, acute	2	—	—	—	—	1	—	—	—	—
Deaths		—								
Erysipelas			40	10	2			42	7	1
Deaths		—					1			
Infective enteritis or diarrhoea under 2 years				98					161	
Deaths	46	7	12	20	12	62	1	47	27	6
Measles*	1,151	61	36	40	4	1,114	21	89	58	25
Deaths	—	—	—	1	—	1	—	—	—	—
Ophthalmia neonatorum	74	2	10	—	—	66	4	14	—	—
Deaths										
Paratyphoid fever	17	—	6 (B)	—	—	14	1	—	1 (B)	—
Deaths	—	—	—	—	—	1	—	—	—	—
Pneumonia, influenzal†	318	12	1	5	2	321	13	6	1	1
Deaths (from influenza)	7	1	—	—	—	6	—	1	—	—
Pneumonia, primary			123	5				108	3	
Deaths		16		7	4		10		5	3
Polio-encephalitis, acute	3	—				—	—			
Deaths		—					—			
Poliomyelitis, acute	31	3	1	5	—	25	—	4	2	—
Deaths		—					—			
Puerperal fever		—	15		—		—	8		1
Deaths										
Puerperal pyrexia‡	124	9	18	1	2	151	4	16	—	4
Deaths		—					—			
Relapsing fever	—	—			—	—	—			1
Deaths										
Scarlet fever	1,001	75	194	15	16	1,071	29	179	19	29
Deaths	2	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	12	1	2	10	5	8	—	4	—	3
Deaths	—	—	—	—	—	2	1	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,152	75	26	35	5	1,316	55	46	33	16
Deaths	2	—	—	—	—	4	2	2	1	1
Deaths (0–1 year)	297	40	42	47	33	314	26	92	54	21
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	3,634	484	504	193	116	3,780	531	561	186	113
Annual death rate (per 1,000 persons living)			11·4	12·5	§			12·9	12·1	§
Live births	6,819	829	825	357	247	5,981	402	868	353	233
Annual rate per 1,000 persons living			16·5	23·0	§			17·7	22·9	§
Stillbirths	221	36	20			185	13	20		
Rate per 1,000 total births (including stillborn)			24					22		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to movements of population, birth and death rates for Northern Ireland are still not available.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* infectious diseases were more prevalent. The increases over the preceding week's notifications were: whooping-cough 185, scarlet fever 79, diphtheria 58, and acute pneumonia 43. Those for measles fell by 176, and for dysentery by 27.

The largest of the local rises in whooping-cough were those of Surrey 36, and London 28. Lancashire, with an increase of 41, showed the only big fluctuation in the notifications of scarlet fever. The total for diphtheria was the largest for five weeks; the biggest rises were Yorks West Riding 12, Yorks North Riding 11, Northumberland 11, London 10, Glamorganshire 10. The incidence of paratyphoid and typhoid fevers, with a total of 29 cases, reached the highest level for thirteen months; 13 of the 17 cases of paratyphoid were reported in Lancashire (Barrow-in-Furness C.B. 10).

For the third consecutive week dysentery notifications fell, the largest returns being Essex 33, London 31, Lancashire 19, Middlesex 17, Surrey 17, Lincolnshire 16, Glamorganshire 13, Yorks West Riding 11, Northumberland 10.

In *Scotland* there were small rises in the incidence of most infectious diseases. The largest were scarlet fever 29, pneumonia 27, diphtheria 21.

In *Eire* diphtheria notifications went down by 14, while rises were recorded for measles 16, and whooping-cough 13. Eighty-five cases of infantile diarrhoea were notified in Dublin C.B.

In *Northern Ireland* the totals for diphtheria and scarlet fever fell by half—by 14 and 28, respectively.

Week Ending September 1

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,020, whooping-cough 1,244, diphtheria 377, measles 851, acute pneumonia 265, cerebrospinal fever 33, dysentery 286, paratyphoid 13, typhoid 9, acute poliomyelitis 28.

Medical News

The Central Medical War Committee is informed that the rate of release of medical officers from the Royal Air Force has been accelerated. The following age-and-service groups will be released by the dates shown: By Oct. 31, Groups 13 and 14 (i.e., additional to Groups 11 and 12); by Nov. 30, Groups 15 and 16; by Dec. 31, Groups 17 and 18; by Jan. 31, 1946, Group 19; by Feb. 28, 1946, Group 20.

It has been announced by the War Office that the release of medical officers will be proceeded with up to Group 23 by Jan. 20, 1946, in step with the rest of the Army.

U.S. medical officers from the Continent were among those attending a course arranged at Glasgow University from Sept. 4 to 7 by the Faculty of Medicine and the British Council. The programme included visits to hospitals and the following lectures: "Modern Chemotherapy," by Prof. Carl H. Browning; "Some Features of the Scottish Health Services and their Development," by Sir Alexander Macgregor and Prof. T. Ferguson; "Some Medico-Legal Aspects of General and Specialist Practice," by Prof. J. Glaister; "Tuberculosis in Scotland during the War Years," by Prof. J. W. S. Blacklock; "The Rh Factor," by Prof. D. F. Cappell; "Art and Therapeutics," by T. J. Honeyman, M.B., Ch.B., Director of the Art Gallery and honorary lecturer on the history of painting, University of Glasgow.

The Princess Tsahai Memorial Hospital Council announces an illustrated lecture by Mr. Richard St. Barbe Baker, in aid of the funds of the memorial hospital now being built in Addis Ababa, which it is hoped to complete at the end of December. The lecture, entitled "The Redwoods, Greatest Trees on Earth, and Trees in Relation to Hospitals," will be given on Tuesday, Sept. 25, at 5 p.m. in the Hastings Hall, B.M.A. House, Tavistock Square, W.C., with Mr. W. McAdam Eccles, F.R.C.S., in the chair. Tickets, price 7s. 6d., 5s., and 2s. 6d., may be obtained from Miss E. Sylvia Pankhurst, 3, Charteris Road, Woodford, Essex.

The following meetings are announced by the Royal Sanitary Institute. Sept. 29: 10.45 a.m., at the Southern Secondary School, Hall, Fawcett Road, Southsea; papers on "Mass Radiography—A Review of a First Year's Working," by Dr. I. M. McLachlan; and "Aspects of Sanitation in the Navy," by Surg. Capt. E. C. Holson. Oct. 13: 10 a.m., at Hope Hospital, Eccles Old Road, Salford; papers on "New Remedies in Disinfestation," by Dr. J. L. Burn, and on "The Unfit House," by Dr. J. E. Blease. Oct. 17: 2.30 p.m., at the Institute, 90, Buckingham Palace Road, S.W., paper on "Use of D.D.T. in the Field," by Lieut.-Col. M. H. Webster, R.A.M.C., illustrated by a sound film.

The Medical Group of the Association for Scientific Photography announces a joint meeting with the Royal Photographic Society, Colour Group and Cinematography Group, to be held in the Hastings Hall, B.M.A. House, Tavistock Square, on Monday, Sept. 24, at 6 p.m. Sergeant Clissna, of the U.S. Army Pictorial Service, will discuss kodachrome cinematography in ward and theatre and show films.

The annual dinner of the Middlesex Hospital Medical School will be held at the Savoy Hotel on Friday, Sept. 28, at 7.30 p.m.

Lord Moran, P.R.C.P., will give the inaugural address at the opening of the session 1945–6 of the London (Royal Free Hospital) School of Medicine for Women. The ceremony is to be held in the Great Hall of B.M.A. House, Tavistock Square, W.C., on Friday, Sept. 28, at 3 p.m. Tea will be served afterwards at the Medical School, 8, Hunter Street, Brunswick Square.

The Archbishop of Canterbury will give the inaugural address at the Westminster Hospital Medical School, Horseferry Road, S.W., on Monday, Oct. 1, at 3 p.m.

During the autumn convention in London of the Incorporated Society of Chiropodists on Oct. 4, 5, and 6, there will be lectures by Mr. Norman C. Lake on "Posture: With Particular Relation to the Legs and Feet"; by Mr. T. T. Stamm, on "Disabilities of the Foot Associated with the First Metatarsal"; and by Prof. F. Wood Jones on "The Evolution of the Foot." Particulars may be had from the secretary of the Society, 21, Cavendish Square, W.1.

The following Chadwick Public Lectures will be given in October and November on Tuesdays, at 2.30 p.m. Oct. 2, at Royal Society of Tropical Medicine and Hygiene, 20, Portland Place, W., Mr. A. F. Russell, A.R.I.B.A.: "Planning for New Housing Standards." Oct. 30, at Livingstone Hall, London Missionary Society, 42, Broadway, Westminster, S.W., Dr. Walter P. Kennedy: "Health Education, its Problems and Methods." Nov. 13, at the Royal Sanitary Institute, 90, Buckingham Palace Road, S.W., Mr. F. C. Vokes on "The Modern System of Sewage Disposal and the Methods and Materials Employed." On Thursday, Nov. 29, at the Westminster Hospital Medical School, Horseferry Road, S.W., Dr. A. M. H. Gray will give the Malcolm Morris Memorial Lecture on "Some Social Aspects of Industrial Dermatitis." Admission to all Chadwick Lectures is free without ticket. Particulars may be had from the secretary, at the offices of the Chadwick Trust, 204, Abbey House, Westminster, S.W.1.

The Food Education Society announces that a public lecture on "Food and Maternal Morbidity and Mortality" will be given by Dame Louise McIlroy at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., on Monday, Oct. 15, at 2.30 p.m.

A series of lectures on "Human Relationships in the Modern World," arranged by the Provisional Council for Mental Health, is to be given at the Museum and Art Gallery, Bristol, each Friday from Oct. 12 to Dec. 14 inclusive. Among the speakers will be: Dr. W. S. Maclay on "The Study of Human Relationships: its Importance at the Present Time"; Dr. Joyce Partridge, "Men and Women in Partnership"; Dr. Emmanuel Miller, "Parents and Children"; Dr. Frank Bodman, "The Problem of the Homeless Child"; Dr. Tom Garland, "The Individual in Industry"; Dr. J. A. Hadfield, "The Individual in Conflict with Himself"; and Lieut.-Col. R. F. Barbour, R.A.M.C., "Readjustment to Civil Life and Peaceful Living." Tickets (£1 for the course) may be obtained from the offices of the Provisional National Council for Mental Health, 2, Elton House, Rodney Place, Bristol, 8.

The eighth annual Louis Gross Memorial Lecture will be delivered at the Jewish General Hospital, Montreal, on Wednesday, Oct. 17, at 8.30 p.m., by Dr. Paul Dudley White, of Boston. The subject will be, "The Heart in Hypertension since the Days of Richard Bright."

At a course, "Shape of Things to Come," for Canadian servicemen arranged by the British Council, the University of Glasgow, and the Committee for Adult Education in H.M. Forces, held from Aug. 14 to 17, a lecture was given by Dr. A. G. Mearns on "Medicine in the Post-war World."

Quinidine, which is the recognized treatment for cardiac arrhythmias, is almost unobtainable, and in spite of the ending of the war with Japan it is certain that no larger quantity will be available for at least a year. Salts of quinine have been used in the treatment of cardiac arrhythmias, though without notable success. In view of the impossibility of obtaining quinidine, and of the absence of any recognized alternative form of treatment, the Medical Research Council has suggested that cardiologists who wish to do so might give further trial to the use of salts of quinine. The Ministry of Supply has agreed to the use of quinine for this purpose.

The Ministry of Health has informed local authorities of the Minister's decision to extend until March 31, 1947, the period during which the arrangements made by them under the Cancer Act, 1939, should be submitted.

Sir Alexander Fleming, F.R.S., has been decorated with the Insignia of Commander of the Legion of Honour by General de Gaulle.

The International League against Epilepsy, founded in 1935, has continued its activities upon a reduced scale during the war. The United States Branch has been prominent and undertook the responsibility of issuing the journal *Epilepsia*, a commitment which had previously been shouldered by the Danish branch. Under great difficulties the Americans issued a copy of this journal during each one of the war years. It is proposed to resume the annual scientific meetings of the British Branch of this League, and provisionally Friday, Nov. 30, has been set aside for the first of these post-war meetings. Further details will be given at a later date. Any qualified medical practitioner interested in the scientific or social-economic aspects of epilepsy is invited to become a member, and is asked to communicate with the secretary, Surg. Capt. Macdonald Critchley, R.N.V.R., Royal Naval Auxiliary Hospital, Barrow Gurney, Nr. Bristol.

Owing to the war the Government of Iraq has been unable to obtain British professors or British medical specialists, and in consequence a number of chairs at the Royal College of Medicine, Baghdad, are vacant. The College provides a six-years course for some 300 Iraqi students and the teaching is in English. The position has now become acute, and appeals for assistance in filling these important posts have been made to the Central Medical War Committee, which has agreed to help so far as possible in obtaining the personnel required. Applications are invited (see advertisement) from candidates, including any serving in H.M. Forces, with the necessary qualifications, and should be sent to the Overseas Manpower Committee, York House, Kingsway, London, W.C.

A new Order partially removing the restrictions on the use of liver extract has been made by the Secretary of State for Scotland. It permits the use of injectable extract of liver without any restrictions as to the conditions to be treated. It also permits the use of oral preparations of liver (including proteolysed and desiccated liver) on the prescription of a registered medical practitioner for the treatment only of pernicious and other megalocytic anaemias. The Order prohibits the use of any preparation intended for oral administration containing liver extract combined with any other active ingredient except stomach extract.

British civilians who have been disabled by war operations or through enemy detention abroad are entitled to compensation under the Personal Injuries (Civilians) Scheme, and to free treatment for their disablement in E.M.S. hospitals. Notification to this effect has been sent by the Minister of Health to all hospital authorities, in Circular 153/45.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Vascular Collapse with Anuria

Q.—*An Indian "other rank" was admitted to a military hospital with acute food poisoning, B. aertrycke being isolated from the massive diarrhoea present. Three pints of isotonic glucose-saline were given intravenously. After ten minutes of running in the third pint the patient shot a hyperpyrexia of 107° with rigors. Subsequently an anuria developed, the treatment being intravenous sodium sulphate followed by intravenous sodium bicarbonate and glucose-saline, with a repetition of sodium sulphate. After six days, during which time a total of five pints of fluid was given and only 30 oz. of urine passed, the patient succumbed. (1) Is there any connexion between the anuria and (a) the original infection, and (b) the hyperpyrexia? (2) What method is recommended for preparing and autoclaving an isotonic solution of sodium bicarbonate?*

A.—A shock-like condition characterized by vascular collapse and anuria may occur in a variety of severe infections and also in hyperpyrexia. It is attributed to pooling of blood in dilated capillaries, with a concomitant reduction in the venous return to the heart and in cardiac output. In the present case the effects of the vascular

shock on the kidneys would have been aggravated by the dehydration and disturbances in the blood chemistry induced by the diarrhoea. In such cases oxygen and plasma (1,000 c.cm.) may be of value to maintain the circulation, and they should be used early, for once a patient develops anuria the outlook is very bad under any treatment. There is still much controversy about the nature and total amount of fluid which should be administered to such patients, but bicarbonate should probably not be given parenterally without knowledge of the plasma bicarbonate.

The *British Pharmaceutical Codex* (1934) states that solutions of sodium bicarbonate for injection may be sterilized "by heating in an autoclave, by tyndalization, or by filtration. When the solution is sterilized by heating in an autoclave or by tyndalization, the containers must be airtight and the solution must almost completely fill the container. The containers should not be opened for one or two hours after the temperature of the solution has fallen to normal."

Concentrated Vitamin Dosage

Q.—*In the light of the article by Marion B. Richards in the* JOURNAL *of March 31, 1945, it would seem that by giving a preparation containing, for example, only vitamin B_1, nicotinic acid, and riboflavin, to a patient already very undernourished, one runs a risk of antagonizing the action of other factors in the vitamin B complex, about which less is known and which may be of great importance. How far can this possibly be avoided in treating a case such as of severe coeliac disease, where nearly all forms of nourishment are refused and where it is necessary to give the vitamins in concentrated form, or even parenterally?*

A.—So far as is possible vitamins should be supplied by food. When concentrations of vitamins are needed, preparations from natural sources—yeast, liver, or wheat germ—that should contain all the vitamins, should be used when possible. If large doses of an individual vitamin, such as can be given only with pure preparations, are indicated, concentrates should be given, if possible, at the same time. In Richards's experiments the evidence of pyridoxine deficiency did not appear at once; parenteral doses of pure vitamins may be used in emergencies—as nicotinic acid for nutritional diarrhoea—without fear of provoking symptoms of other deficiencies.

Asthma after Pneumonia

Q.—*A patient developed asthma after an attack of pneumonia in 1940. Different localities affect him, and he has now found a district where he keeps relatively free. Unfortunately he finds that the presence of his wife, and also occasionally of other individuals, provokes an attack. There is no marital disharmony, and he himself is well balanced. He has tried sleeping with her hair-brush and with a sprinkling of her face powder on his pillow without result. The psychological element, while a possibility, seems unlikely to me. Could he be allergic to some foreign protein, bacterial or other, in his wife's nose or mouth or dandruff? Skin tests on himself of the usual substances have shown inconclusive results. The seasons make no difference.*

A.—Asthma following pneumonia is usually due to the sufferer's being sensitive to some air-borne inhalant, such as feathers, horsehair, animal hairs, dust, pollens, or orris root, and rarely to any bacteria. The effect of different localities is dependent on the presence or absence of these factors, together with the sufferer's general state of health. His attacks will be more frequent during worries, troubles, mental upsets, or slight ill-health from other causes, depending upon the amount of protective adrenaline he is able to produce himself. Attacks provoked by the presence of another person are usually to do with the person's occupation or connected with the handling of animals. It may be that his wife rides horses or has a favourite cat or dog. This is more probable than that the attacks have anything to do with any foreign protein of a bacterial nature from his wife's nose or mouth. I think that if skin tests were done intradermally with the inhalants mentioned more conclusive results would be obtained.

Oil-in-water and Water-in-oil Emulsions

Q.—*What is the difference between a water-in-oil and an oil-in-water emulsion?*

A.—An emulsion may be described briefly as a preparation composed of two immiscible or almost immiscible liquids, one of which is uniformly distributed in a fine state of subdivision throughout the other. When one liquid is water and the other oil we may have either an oil-in-water (oil/water, O/W) or a water-in-oil (water/oil, W/O) emulsion. In the oil-in-water type the oil is in a fine state of subdivision and is known as being the disperse or discontinuous phase. It is uniformly distributed throughout the water, which is known as the dispersion medium, or external or continuous phase. In a water-in-oil emulsion it is, of course, the water that is in a fine state of subdivision, and it is then known as the disperse phase, and the oil as the dispersion medium. Except with very dilute emulsions a third factor is present, known as the emulgent or emulsifying agent: sometimes also called the intermediate phase, or interphase.

A large variety of substances may be used as emulsifying agents. They are, however, invariably colloidal, and it is the emulgent that usually determines the type of emulsion produced. For example, the gums yield oil-in-water emulsions except when they have in certain cases deteriorated and become acid, when a water-in-oil emulsion may result. Again, the univalent alkalis invariably produce oil-in-water emulsions, whereas the bivalent alkaline earths and trivalent gases invariably give rise to water-in-oil emulsions. The widely used lanette wax SX produces the oil-in-water type.

It is not uncommonly assumed that the proportions of oil and water present determine the type of emulsion, as it is thought that a very high proportion of oil could not be dispersed throughout a very small volume of water. This is, however, a fallacy: it is the emulsifying agent that chiefly determines the type of the emulsion, and, in fact, oil-in-water emulsions containing as much as 99% oil have been produced.

Profuse Periods in Young Girl

Q.—*What is the correct treatment for a girl of 16½ who has profuse periods about every 12 to 14 days, lasting almost a week? There is no dysmenorrhoea and no evidence of organic disease; general health is good. When she started menstruating three years ago the periods occurred at intervals of five weeks, but have gradually got more and more frequent.*

A.—The use of the word "correct" makes this question difficult, if not impossible, to answer. There are many possible lines of treatment for cases of this kind, but none are uniformly successful and most are empirical in nature. In any case there is a natural tendency to spontaneous cure. Thyroid should be tried initially. Begin with 1 gramme daily and gradually increase the dose up to the limit of tolerance. Calcium in large doses can with advantage be given at the same time, and the treatment should be continued regularly for three months. If simple treatment of this kind fails, then try five to seven daily intramuscular injections of 5 mg. progesterone, commencing one or two days before the expected onset of a period. However, in order to be sure of the nature of the underlying disturbance and its appropriate hormone treatment endometrial biopsy may prove necessary.

Tryparsamide for G.P.I.

Q.—*Would you discuss the use of tryparsamide in G.P.I.?*

A.—Tryparsamide is a very useful drug in the treatment of G.P.I. but it should be understood that normally it is used only as a "second string" to artificial fever induced by malaria or physical means. After adequate fever treatment, tryparsamide should be given intravenously in doses of 3 grammes, dissolved in 10 c.cm. distilled water, once weekly for 10 to 12 weeks; this constitutes a "course," which should be repeated, with intervals of a month or thereabouts, over a period of 2 to 3 years or more. It is customary to give bismuth as well as arsenic; the two drugs may be given concurrently or alternatively. The dose of bismuth metal should be about 0.25 gramme per week, and a rest interval should be given when the total reaches 2.5 grammes. Tryparsamide is liable to cause amblyopia, and the patient's eyes should be examined by an ophthalmologist before arsenical therapy is initiated, and again after a few injections, in order to obviate this; if the eyes are not affected by the first five injections or so they are unlikely to be affected later.

Tryparsamide is supplied in powder form and should be dissolved immediately before use, though it has not the same tendency to become toxic on exposure to the air that neoarsphenamine has; apart from its effect on the eyes it rarely causes serious toxic reactions.

Stilboestrol for Premature Infants

Q.—*What is the rationale of administering stilboestrol (or other hormone) to premature infants? In what dosage is it given to such babies?*

A.—During pregnancy large amounts of oestrogen are present in the maternal circulation and pass through the placenta to the foetus. This is excreted from the foetus within two or three days of birth, so a baby born before term is prematurely deprived of its influence. There is nothing to show that the action of oestrogen on the baby *in utero* is specially beneficial, but, on the assumption that it is, it has been administered to babies born prematurely. Synthetic oestrogens such as stilboestrol are too powerful and toxic for this purpose, and the natural oestrogens are to be preferred. The usual dose is about 500 i.u. (0.05 mg.) in a little warm water, twice daily by mouth. For details see Mabel Potter, *Journal*, 1937, **1**, 1201.

Poisonous Fish

Q.—*My boy, while shrimping, was stung by a fish (probably a weever fish) he had caught in his net. Almost immediately his finger became very painful, red, and swollen. Shortly afterwards the swelling extended to the back of the hand. Treatment was on general lines, and the condition is settling. What stinging fish are likely to be met with round our shores? What is the nature of the poison of the weever fish, and what is the appropriate treatment?*

A.—There are two species of weever fish which frequent the coasts of Britain: the greater weever (*Trachinus draco*) and the lesser weever

(*Trachinus vipera*). The greater weever, though provided with a poison apparatus, does not cause many casualties, as it lives in fairly deep waters away from the shore; whereas the lesser weever inhabits the shallow waters near the shore, with the result that children and shrimpers are often stung. The stinging apparatus of the weever is contained in the spines of the anterior dorsal fin and also in the large spines which form a continuation of the gill covers. The glands which secrete the poison are lined with columnar epithelium and discharge the poison down grooves in the spines. The sting causes acute pain and local inflammation. Weever venom causes haemolysis and reduces the opsonic index of the leucocytes. This latter phenomenon is no doubt the reason for the inflammation which nearly always follows a sting from one of these fish. Other poisonous fish inhabiting our coasts are the spiny dogfish (*Squalus acanthias*) and the sting ray (*Trygon pastinaca*). Further information on stinging fish can be found in *Sting-fish and Seafarer*, by H. Muir Evans (Faber and Faber Ltd., 1943).

For immediate treatment an injection of a few minims of 5% solution of potassium permanganate at the point of entry of the sting is recommended. For the subsequent inflammation treatment should be on the usual general lines.

Sodium Amytal

Q.—An intelligent middle-aged man, an active brain-worker, who is of an anxious worrying temperament and of the unstable vasomotor type, finds that life is made more comfortable and tolerable for him if he takes 1 grain of sodium amytal night and morning. He shows no sign of idosyncrasy to the drug and is perfectly fit otherwise. Apart from damage to his personality which would result from a feeling of dependence on any drug, what are the physical risks entailed in allowing him to continue this habit more or less indefinitely, and is there any risk of intellectual deterioration?

A.—Experience of prolonged use of sodium amytal over years is still very small; but the drug seems to be very non-toxic, and in a small dose such as 1 grain twice daily there should be no physical risk whatever. Almost certainly it would have less undesirable effect than one small whisky night and morning. There is no risk of intellectual deterioration. Experience to date suggests that the risk of addiction—i.e., of requiring increasing doses to secure the same effect—is also minimal.

Fractured Femur in Child

Q.—A child of 5 years has a fracture of the lower third of the right femur, not into the joint. There is good union, and anatomical position is good. Treated in gallows splint for six weeks. Must the child wear a walking calliper and, if so, for how long?

A.—A gallows splint is not usually regarded as a good method for children of that age—the Thomas leg splint is much better. In this particular case I should advise the questioner to get the child up and about with crutches for a couple of weeks at least before allowing weight-bearing on the affected limb.

Bruising and Rheumatism

Q.—Is the occurrence of spontaneous "bruising" of the skin a recognized feature of the rheumatic diathesis? The patient in question is a woman of 50, in good health apart from rheumatic pains, which she has had for the past 25 years, and a commencing mild atrophic arthritis of wrists and knees.

A.—Anaphylactoid purpura may present bruising due to effusion of plasma from the blood vessels with a varying amount of cells, and a similar effusion may occur into the joints, giving rise to pain and swelling regarded as rheumatic. It would thus be more accurate to speak of a haemorrhagic diathesis with rheumatic symptoms than a rheumatic diathesis with spontaneous bruising as a feature. Lichtwitz, however, regards rheumatic fever as an allergic reaction, and erythema, urticaria, and purpura as skin lesions due to the small allergic reaction. In the case in question it would be desirable to have a complete blood examination, including the sedimentation rate as an indication of a possible infective focus; if the rate is not increased then the arthritis is presumably not of the rheumatoid type. The blood tests should include the clotting time, a count of the blood platelets, and the vitamin C content. As the condition has existed for 25 years, apparently without any ill effect on the general health, treatment does not appear to be urgently needed, and the more radical methods such as blood transfusion would not be justified. Injection of horse serum is often effective for a time.

The level of vitamin C in the blood is usually lowered in rheumatic diseases, and if this is found to be the case the administration of ascorbic acid is worth a trial; it may prove beneficial even if it does not directly affect the bruising tendency. Authorities differ on the question whether ascorbic acid is alone effective, and vitamin P is held by some to be the active agent, improving capillary resistance; it is present with vitamin C in lemon juice. If, on the other hand, there is a prolongation of the clotting time, the deficiency is probably in vitamin K, present in many green vegetables, tomatoes, soya bean, etc. Lowered capillary resistance is, however, the most probable cause in this case, and a substantial increase in the intake of vitamin-C-containing fruits and foods may be of general benefit and can do no harm. If the sedimentation rate is increased and the diagnosis of rheumatoid arthritis is thus confirmed, great caution will be desirable in the use of gold as a method of treatment.

Fear of Heights

Q.—A patient very interested in architecture has an incomprehensible feeling of terror when he finds himself in any lofty building, like a cathedral. I suspect that only psycho-analysis will discover the cause of this fear, but is there any general theory which would indicate possible causes?

A.—A variety of causes, or contributing factors, is given for the fear of heights. It is said, for instance, that astigmatism, with its lack of visual co-ordination, plays an important part. Others find the cause to be a confusion of mental association, the sensation from the feet indicating that one is 6 feet from the ground, whereas the eyes indicate that one is 60 feet from the ground, which leads to a tendency to giddiness with a corresponding fear of falling. This does not occur in an airplane, because then most of the body is in contact with the seat, which is the prevailing factor, and the earth below is simply a distant view.

Biologically the fear of falling is an innate fear (Watson regarding it, and the fear of noise, as the *only* innate fears). It starts at birth and is possibly derived from our arboreal ancestry, with its danger of falling from trees. This naturally passes away; but if it is reinforced by an experience of falling in childhood one may become over-sensitive to this stimulus, and a later fall or threat of a fall may precipitate it into a conditioned fear. This is rarely a sole cause. More commonly the fear is symbolic. There may have been a primitive fear of falling, but this is transferred to a moral situation; so the fear of falling may come to represent a subconscious fear of a moral lapse (we talk of "fallen women"). Most commonly, in our experience, it is found in those who have a "power psychology," who are ambitious, who crave for power and achievement, to reach the heights. If we aim too high and live on a pedestal we have reason to fear falling from our heights of attainment, and the fear may take a physical form. In other cases it goes a step further, and occurs in people who, in their efforts to achieve, become overstrained, and therefore want to "let everything go" in passive abandon; this wish, taking a physical form, is then feared. Or it may, with less likelihood, be a sexual masochism: like the lady who had the desire to be "less than the dust beneath thy chariot wheel"! It is probably true that only analysis (not necessarily psycho-analysis, which applies only to the Freudian method) will discover and eradicate the cause. The true cause may be found in a combination of some of the factors mentioned: an actual fall in infancy produces a fear of heights; a reaction to this fear takes the form of assertiveness and self-sufficiency to overcome the fear, this overcompensation of power being a mechanism to keep the fear at bay; the fear of failure in attaining one's ambition of power then takes a symbolic form, and the desire to let everything go increases the fear. In the final resort the fear is therefore a fear of a wish, like most phobias.

Schick Test and A.P.T.

Q.—In the JOURNAL *of May 8, 1943 (p. 589), under the heading "Duration of Diphtheria Prophylaxis," it is stated that a reinforcing dose of A.P.T. should be given from 3 to 5 years after the first immunization against diphtheria. A note on Aug. 4, 1945 (p. 171) states that the boosting dose should not be given in "children of 7 and 9 years" without preliminary Schick tests; it is not clear whether this applies only to asthmatic children. Is Schick testing necessary before giving a reinforcing dose of A.P.T. in all children over 6 years of age, and unnecessary under that age?*

A.—If children are inoculated with diphtheria prophylactic at the age of 1 year or earlier, the artificial immunity thus induced may wane within the following 2 to 3 years, particularly if the child is not much exposed to "natural stimuli" from contact with other children who may be diphtheria carriers. Thus young children have been found to have very low levels of diphtheria antitoxin in their blood 2 to 3 years after the primary inoculations, and have developed diphtheria, usually of a modified type. When these children go to school they are more likely to receive natural stimuli to antibody formation from contact with cases of diphtheria and diphtheria carriers, although with high rates of immunization among school-children such stimuli will be less common in future. It is at this stage, when the child is partially immunized, that pseudo-reactions with the Schick test tend to occur, and pseudo-reactors are most liable to severe reactions after an injection of diphtheria prophylactic. While, therefore, there is little likelihood of untoward reactions to a boosting dose given to a child aged 3 to 5 years in whom the antibody titre has probably dropped to a low level, the chances of such a reaction are greater with older children at school. Obviously no precise age limit can be given at which it is safe to

give the boosting dose without a preliminary Schick or Moloney test, since environmental conditions may affect the child's antibody response. A good guide might be to Schick-test all children who had been at school for a year or more, before giving a further dose of A.P.T.; or, alternatively, to use T.A.F., a less potent antigen, for the boosting dose in such children.

Housemaid-Receptionist and Unemployment Insurance

Q.—*An inspector of the Ministry of National Insurance called upon me and inquired about employees of myself or by the partnership. The surgery accommodation is at my house, and I employ one maid. She helps my wife with the work of the house, and, of course, answers door-bells, telephone, and so on. The inspector claims that the maid is employed as a receptionist and as such should have a card stamped weekly for unemployment benefit as well as N.H.I. benefit, and has requested a payment of £10-odd for arrears. This seems to me to be a new departure and one not lightly to be acceded to, and I should be glad of your comments and advice.*

A.—The question is whether the maid's employment as a receptionist is substantial or merely occasional. There are no hard-and-fast rules; each case has to be decided on its own facts. The doctor or the maid, or both, may appeal to the Minister, applying on the appropriate form, which can be obtained from the local office. The Minister will probably appoint a barrister or a solicitor to conduct a local hearing and report. An appeal against his decision can be brought to the High Court.

INCOME TAX

Indian Army Personnel

"I.A.M.C." asks (*a*) whether an officer in the Indian Army Medical Corps proceeding to the United Kingdom for permanent residence there will be liable to United Kingdom tax on allotments paid in this country in the income-tax year of his return if he maintains a residence here prior to return, and (*b*) what is the position as regards I.A.M.C. officers returning to their homes in Britain for 28 days' leave or longer.

⁂ (*a*) Yes, he is liable for the year of return on pay or allotments issued here. (*b*) Such officers are apparently liable in respect of their pay for the period spent in this country—assuming they are maintaining a residence here. *General Note:* As the liability turns on "residence" in this country, the normal personal and family allowances can be claimed on the full year's basis. Further, if tax is paid in both countries in respect of the same income, relief from the double income tax can be claimed.

Wife's Salary as Dispenser

D. W. pays his wife £104 per annum as dispenser. Payment is made quarterly. How should tax be paid on the salary?

⁂ Presumably the wife is an employee and her salary is charged against the profits of the practice. The payments made to her are "emoluments" falling within the P.A.Y.E. system, and tax should be deducted therefrom accordingly.

Liability on War Loan Interest

A. L. has had an income of £180 from war loans since 1941, when it was declared for income-tax purposes. He has now received a demand note for the tax on this interest for 1942–3 and 1943–4, though during those years it was entirely spent on university and college fees.

⁂ The tax is legally assessable. The liability is not affected by the purpose for which the income was expended.

Deduction for Use of Car

"INQUIRER" asks what deduction can be claimed for the use of a car required for transport to clinics and hospitals. What is the position if a mileage allowance is given by the employer?

⁂ A deduction can be claimed for the amount of the expenses incurred "wholly, exclusively, and necessarily" in travelling between the places where the duties of the office held have to be performed. No rule can be given of general application as to what that amount would be—it clearly depends on the circumstances of each case. If a mileage allowance is received no further claim can usually be made, as it is prima facie deemed adequate for the "necessary" expenditure, but of course it is not regarded as part of the chargeable earnings.

Tax Payable on Pension

A. B. inquires what tax would be payable on a pension of £512; he is married and has a niece, aged 17 years, for whom he is entirely responsible, though she is not legally adopted.

⁂ Unless the niece is receiving whole-time education of a recognized form no allowance for her is claimable. If she is receiving such education and no other individual is entitled to an allowance in respect of her the amounts of tax shown below as payable would be reduced by £25. The tax payable on the pension calculated as for the present financial year is £136 12s. 6d., of which £37 will ultimately be returnable as "post-war credit." It is of course possible that the tax for the year commencing April 5, 1946, may be the net amount—i.e., £111 13s. 6d. or less—but that depends on future legislation.

Sale of Car

"MEMBER" asks, If a car, used for professional purposes, on which depreciation has been allowed annually, is sold for more than the difference between the aggregate of the amounts allowed for depreciation and its original cost, is the excess subject to income tax or would any adjustment of past depreciation allowances be made?

⁂ The excess is not subject to income tax—the car being part of the professional equipment and not stock in trade—and no adjustment is due in respect of past allowances, which were presumably reasonable on the facts as then existing.

LETTERS, NOTES, ETC.

Sting-ray Poison

Dr. W. H. PALMER (Hayle, Cornwall) writes: Having just read Dr. R. H. Blair's letter (Aug. 25, p. 267) and Dr. Muir Evans's letter referred to (which I had previously missed), I am wondering if the sting-ray poison is analogous to that injected from the dorsal spine (with poison sac at its base) of a little transparent fish (I don't know its name) that hides in the sands here in shallow water, in such a way that the sole of the bather's foot can be punctured and receive the poison, giving intense pain and cramp all up that leg, with varying degree of shock, nausea, and malaise, but very little local signs of puncture. In these cases I find that subdermal injections of (1) 10 minims of adrenaline 1 in 1,000 repeated if found necessary, (2) calcium and vitamin D 2 or 3 c.cm.—put into different areas of the poisoned limb—give fairly quick relief. The idea came to me when wondering if the poison was allergic in nature. Anyway, whether that is so or not, this treatment seems to act well, and might be worth trying in cases of sting-ray and jelly-fish poisoning.

A Fatal Shot

Dr. ERIC GARDNER (Weybridge) writes: A man using a borrowed 12-bore shotgun in a harvest field, and standing at the top of the field, which was on a very steep slope, had just reloaded, and as he closed the breech the right barrel, the lock of which was defective, discharged. A farm hand standing 36 yards away at the bottom of the slope and looking upwards towards the gun received the full charge in front. He fell down and died almost immediately. The necropsy showed that 47 pellets had struck his chest, abdomen, and upper thighs, with a few scattered shot-holes on his arms and lower face, but only two of these pellets had even penetrated the skin and had done no harm. The brain was covered with a very large subarachnoid haemorrhage spreading up the sylvian fissures on to the surface of the hemispheres, with a good deal of subdural haemorrhage as well. The right posterior cerebral artery was severed, and between the cut ends a No. 5 pellet was lying. Of the 48 pellets that struck the body one only was responsible for death, and that one had entered the right nostril, passed through the sphenoid sinus just to the right of the middle line, emerged through its roof, and travelling backwards, had severed the right posterior cerebral artery.

Sensitivity

Major W. O. G. TAYLOR, R.A.M.C., writes: We have to thank Dr. A. C. Lendrum (Aug. 11, p. 198) for his remarks. Of course it is known that sensitiveness may occur to any substance under the sun—even to sunlight itself. So it has to be expected that cases of sensitiveness to the plasticizer of sensitive resin may quite well occur, and this should be borne in mind when reading the answer in the column "Any Questions?" on the effectiveness of phthalates (Aug. 18, p. 240).

Disclaimer

Dr. SIDNEY E. CROSKERY (Tunbridge Wells) writes: My attention has been drawn to the mention of my name as the doctor attending a premature baby in an article in the *Kent and Sussex Courier* of Sept. 7. This notice was put in without either my knowledge or consent.

Corrigenda

Dr. F. J. WILFRID SASS writes: In my letter "Tuberculous Persons in Prisons" which you kindly published on Sept. 1 I made two omissions: in the seventh line from the bottom of the page, after the words "on a mattress," "in the open air" should have been written; and in the last line of the letter I should have said "(greens, peas, carrots, parsnips, turnips, and onions were often served)."

In the *Journal* of Sept. 8 (p. 341) appears a question and answer under the heading, "Sex Hormones to Control Uterine Bleeding." In the last sentence of the reply the word "stimulate" should have read "simulate."